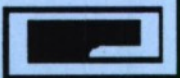


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PERSEREC

PREDICTING SCHOOL AND JOB PERFORMANCE OF MARINE SECURITY GUARDS

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and Education Center****Joseph P. Parker
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**PREDICTING SCHOOL AND JOB PERFORMANCE
OF MARINE SECURITY GUARDS**

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PREFACE

PERSEREC has been supporting the Marine Security Guard (MSG) Battalion since June 1987 in the development and evaluation of screening, psychological assessment, and continuing evaluation procedures. This report is the fifth in a series resulting from this project. Previous reports address: (1) the prediction of school performance for students in MSG class 4-87; (2) the development of a Life Experiences Questionnaire (LEQ) for use at the MSG school; (3) the factor structure of the Marine Corps Special Assignment Battery; and (4) the development of MSG job performance rating scales for use as criteria in evaluating the predictiveness of various test instruments.

The present report documents a large-scale effort to evaluate a variety of predictor tests for potential use in screening and selecting Marine Security Guards. Data used to validate the tests were obtained from the Marine Security Guard school and from a special administration of tests and performance evaluation measures to Marines at all MSG detachments worldwide.

As a result of this research program, one test instrument -- the LEQ -- is already being used at the MSG school. Findings from the present study point to the value of employing additional measures to screen Marines into the school and to screen for MSG duty as a means of reducing school attrition and improving the overall performance of personnel assigned to the program.

In addition to the authors, several individuals deserve recognition for their contributions to this study. Dr. Michael A. McDaniel, formerly of PERSEREC, assisted in the planning stages of this project. Ms. Lisa McClain-Vanderpool and Mr. Chris Fitz provided research support at various stages of the project.

Roger P. Denk
Director

PREDICTING SCHOOL AND JOB PERFORMANCE OF MARINE SECURITY GUARDS

Prepared by
Martin F. Wiskoff, Joseph P. Parker, Ray A. Zimmerman
and Forrest Sherman

SUMMARY

Problem and Background

The use of Marines as security guards in diplomatic posts was initiated in December 1948 by a formal Memorandum of Understanding between the Department of State and the Secretary of the Navy. The task of Marine Security Guards (MSGs) is to provide security services at designated United States diplomatic and consular facilities to: (1) prevent the compromise of classified material and equipment which, if compromised, would cause serious damage to the national security interests of the United States and (2) provide protection for United States citizens and property within the principal building of the mission.

Marines serve in over 100 countries and independent cities at over 140 diplomatic missions. There are currently more than 1,400 Marines on duty at embassies, legations, and consulates. Detachment size ranges from six to 39 Marines; the average is about nine. Each detachment is commanded by a Marine senior noncommissioned officer (SNCO). The SNCO has a dual reporting responsibility. Within the Marine Corps chain of command he reports to one of seven Companies that oversee the MSG program for the MSG Battalion. On a daily basis, he is supervised by a State Department official, usually a Regional Security Officer (RSO) who is responsible for the security of the embassy.

Every year approximately 900 Marines, with an average age of 22, enter the security guard training program at the Marine Security Guard school, Quantico, VA. A much smaller number of SNCOs, with an average age of 31, are also trained at the school as Detachment Commanders. About 70 percent of the entering Marines graduate and are assigned to MSG duty as MSGs or Detachment Commanders.

The research requirement for this project originated with a March 1987 memorandum from the Deputy Secretary of Defense to the Secretary of the Navy requesting a critical examination of the characteristics required for successful performance of MSG duties. In May 1987 an interservice/agency conference on psychological assessment of specialized military units was convened at the MSG school. The outcome of the conference was a research agenda for the MSG program and the designation of PERSEREC to conduct research in support of the MSG Battalion.

Objective

The overall objective is to provide the MSG Battalion with methods, instruments, and procedures for improving the quality of Marines in the MSG program. The research program has four major components: (1) creation of a computer-based system for recording, scoring, and analyzing student attitudes and personal history data; (2) development of procedures for screening MSG school applicants; (3) design of a psychological assessment system to assist the MSG school Screening Board in determining which students should be accepted for MSG duty; and (4) development of measures for the continuing evaluation (CVAL) of the performance and behavior of MSGs on duty.

Research on the first component has been completed. The major portion of this work, the design and interpretation of a biodata instrument, the Life Experiences Questionnaire (LEQ), is the subject of a separate report (Parker, Wiskoff, McDaniel, Zimmerman, & Sherman, 1989). The second and third components are addressed in the present report. Work on the development and evaluation of a CVAL procedure is ongoing and will be reported in the future.

Approach

The approach taken in this study was to correlate biographical data and psychological test scores with criteria of MSG school and job performance. As a first step, current eligibility factors employed to screen and select Marines into the MSG program were obtained and reviewed. Next, a search was conducted for additional predictors of performance, with primary emphasis placed upon those measures and instruments that had demonstrated validity in earlier research with the MSGs and with other Marine Corps enlisted personnel. Consideration was also given to other Service or private sector tests that had been successfully used in predicting performance in similar types of jobs and environments.

An experimental battery of predictor tests was assembled and administered to students at the beginning of several classes at the MSG school. As the program evolved, the composition of the test battery was modified. Accordingly, not all classes received the same tests, although several of the instruments were given to all students. The tests that were administered encompassed personality, motivation, interest, attitude, and biographical domains. In addition, aptitude/achievement scores and personal history data, which will be referred to collectively as background variables, were obtained from automated personnel files and MSG school records. A total of 1,311 students were tested at the school in 1987 and 1988.

Available indices of MSG school success were obtained from individual training records and from the Screening Board that recommends whether a student will be assigned to duty as an MSG. Additionally, peer ratings routinely obtained during MSG school, and regularly employed by the Screening Board in its decision-making process, were analyzed for their utility as a criterion of school performance and as a potential predictor of job performance. Analyses were conducted of the school criteria, and seven were selected as most reliable and appropriate for this study. They included: (1) the Screening Board recommendation; (2) a final score that determined students' class ranking; (3) four factors derived from the peer ratings; and (4) a total score for the peer ratings.

Concurrent with this research, a related effort had developed behaviorally anchored rating scales to be used as criteria for evaluating the job performance of MSGs (Houston, 1989), since no system for rating MSG job performance was in place. In the summer of 1988 a battery of tests and rating scales was mailed worldwide to all detachments. Tests were completed by MSGs and Detachment Commanders who had not taken them while in MSG school. Ratings of performance were made on MSGs by other MSGs and Detachment Commanders. Detachment Commander evaluations were performed by MSGs, RSOs, and Company personnel.

Completed rating forms were received from 118 of the 140 detachments, an 84 percent return rate. Ratings were skewed toward the upper end of the seven-point rating scale. Detachment Commander ratings of MSGs and RSO ratings of Detachment Commanders were used in subsequent statistical analyses because they were the most reliable and their use resulted in the most interpretable findings. A factor analysis was performed for MSG ratings by Detachment Commanders and a four-factor solution yielded the best results. The rotated factors were named Core Duties, Interpersonal, Overall Effort, and Self-Discipline. A four-factor solution of RSO ratings of Detachment Commanders was also used. The factors were labeled Core Duties, Interpersonal, Self-Discipline, and Relationship with Detachment.

The predictor data obtained at the MSG school and in the field were combined to increase the power of the statistical analyses and because it would

have been difficult to separate individuals who took some of the test instruments in both places. Correlation coefficients were corrected for criterion unreliability based on empirical estimates of interrater reliability, where possible. The obtained coefficients for interrater reliability ranged from .67 to .80. Where empirical estimates of interrater reliability could not be obtained, a value of .60 was employed, since this value is commonly used in the literature on validity generalization. Corrections were also made for range restriction on the predictor using an unrestricted sample of all individuals who were given the tests at the MSG school.

Results

Screening Applicants for MSG School

The background variables for MSGs that showed significant correlations with MSG school pass/fail status were: (1) General Technical (GT) score from the Armed Services Vocational Aptitude Battery (ASVAB); (2) physical fitness (PFT) score; and (3) total indebtedness. For SNCO applicants, the two variables that were found useful for screening purposes were age at entry into the Marine Corps and PFT score. Minimum eligibility scores were established for these variables by determining the level at which there was at least a 50 percent probability of passing the Screening Board evaluation.

Selecting Students for MSG Duty

The major consideration in evaluating instruments for possible use in selecting students for MSG or Detachment Commander duty is whether they predict the MSG school criteria and actual performance on MSG duty. The goal is to select those instruments that predict both criteria and to develop rules for their use.

Analyses were first conducted with peer ratings as a predictor of school and job performance. A peer ratings total index correlated strongly with pass/fail in MSG school and with Detachment Commander ratings of MSGs.

Of the predictor tests, the LEQ, Assessment of Background and Life Experiences (ABLE), Sixteen Personality Factor Questionnaire (16PF), Marine Corps Special Assignment Battery (SAB), and the Clinical Analysis Questionnaire (CAQ) were found to contain the largest number of useful predictors of school criteria for MSG candidates. Many of the scales (or composites in the case of the 16PF) from these instruments showed statistically significant relationships to the pass/fail, final score, and peer ratings criteria. In general, the LEQ and ABLE displayed the

strongest relationships. A series of stepwise discriminant function analyses was conducted to help determine which instruments would probably be the most useful in selecting students for MSG duty. The results indicated that the LEQ and ABLE show the greatest promise for predicting success in MSG school and that the use of additional instruments would only be of marginal value in improving the prediction of school success.

Next, correlations were computed between each of the predictors and the measures of MSG duty performance. A sizable number of scales from the LEQ, ABLE, CAQ, and Stress Evaluation Inventory (SEI), along with several 16PF composites, were found to be predictive of job performance. Generally, the correlations tended to be stronger for scales from the LEQ, ABLE, and some 16PF composites. An all-possible-regressions procedure was conducted to provide further evidence as to which instruments would be the most useful in selecting students for MSG duty¹. In this case, the SAB and ABLE showed the greatest promise for predicting how well an MSG will perform on duty. As was the case with the stepwise discriminant function analyses, the results indicated that the use of additional instruments would only be of marginal value in improving the prediction of MSG duty performance.

The small number of Detachment Commander candidates in the sample was a limiting factor in evaluating the relationship between predictors and MSG school criteria. For most instruments, however, Detachment Commander school performance could be predicted in much the same manner as MSG school performance. In general, the pattern of LEQ, SAB, and ABLE scale correlations with school criteria for Detachment Commanders was much the same as that seen with MSGs. While not every meaningful correlation for one sample was replicated in the other, the instruments performed similarly in the two samples.

Correlations between the predictors and RSO ratings of Detachment Commander performance were examined next. Many of the scales from the SAB and ABLE showed a strong relationship to duty performance and could thus aid in deciding which individuals should be selected. In addition, these scales evidenced a large measure of face validity. However, because small sample size was even more of a problem with these analyses, the results should be considered with caution.

A final analysis was conducted across all instruments in order to determine which scales are most related to successful MSG school and job performance. The successful Marine exhibits the following characteristics: (1) conscientiousness;

¹The LEQ could not be included in these analyses because sample size was too small for many of the scales.

(2) cooperativeness; (3) high energy; (4) nondelinquency; (5) organization; (6) stability/adjustment; (7) traditional values; and (8) work orientation.

Conclusions and Recommendations

The results showed that many of the background variables and psychological instruments predicted MSG school and job performance measures at a level of statistical significance. Time and cost considerations, however, dictate that the number of tests used in screening and selecting MSGs and Detachment Commanders should be kept to the minimum necessary to achieve adequate prediction of success.

It was determined, through additional analyses, that the screening of applicants would be most effective using a combination of the background variables mentioned earlier and the SAB. These tools would enable the MSG Battalion to effectively screen applicants prior to their arrival at the school; this would result in a higher quality of student and a higher graduation rate from MSG school. Procedures for using these measures are described in the report.

The final consideration, with respect to the use of these measures in screening applicants, is their impact on attrition at MSG school. To reiterate, cutoff scores were set at the point where approximately 50 percent of the individuals not meeting the cutoff would have failed MSG school. For the data from this study, if the cutoff scores for GT, PFT, SAB, and total indebtedness had been used, the attrition rate for MSGs (i.e., the number of MSGs who failed the program divided by the number who entered the program) would have been reduced from 27.3 percent to 12.9 percent. Thus, the attrition rate would have been reduced by 14.4 percentage points. An alternative way of looking at the reduction in attrition is to examine the expected percent reduction in the number of MSGs who would have failed the program. By adhering to the cutoffs for these variables, the number of MSGs who failed the program would have decreased by 42.6 percent.

Considered separately, the following percentages of individuals would have been eliminated by using the cutoff scores for each of the measures: (1) 2.9 percent for the GT 90 cut; (2) 5.9 percent for PFT below 170; (3) 10.4 percent for the SAB cut; and (4) 3.6 percent for indebtedness of more than \$11,000. While these figures add up to 22.8 percent, the overlap among variables would result in a combined rejection rate of 20.6 percent. However, it must be remembered that those individuals who would be rejected only have a 50 percent chance of passing the school.

Performing the same analyses for Detachment Commanders, it was found that, if the cutoff scores for PFT, SAB, and age at entry into the Marine Corps had been used, the attrition rate would have been reduced from 34.4 percent to 7.1 percent. This projection must be treated with extreme caution, due to the small number of Detachment Commanders in the sample. Given the limited number of SNCO applicants, the cut scores should be used as a means of identifying those who require more careful screening, rather than as a set of criteria for automatic rejection or acceptance.

The present findings support the continued use of the LEQ for selecting MSGs and Detachment Commanders. They also indicate that a combination of the LEQ, ABLE, and peer ratings total would significantly improve prediction of school and job performance. Procedures are suggested for using the ABLE in the same way that the LEQ is currently employed at the MSG school.

Specific recommendations are that:

1. The following measures should be used to screen MSG applicants prior to entry at the MSG school:
 - a. A minimum derived GT score of 90 on the ASVAB. This is a current eligibility requirement but it has been waived in the past.
 - b. A minimum PFT score of 170.
 - c. Financial obligations of less than \$11,000.
 - d. A minimum SAB score of 87.
 - e. Consideration of the pattern of SAB scale scores in making decisions on borderline applicants.
2. The following measures should be used to screen Detachment Commander applicants prior to entry at the MSG school:
 - a. A minimum PFT score of 166.
 - b. A minimum SAB score of 98.
 - c. More careful screening of those who entered the Marine Corps at age 20 or older.
 - d. Consideration of the pattern of SAB scale scores in making decisions on borderline applicants.
3. Selection of students for MSG duty should include:
 - a. Continuation of present procedures of administering, scoring, and interpreting the LEQ (Parker et al., 1989).

- b. Adoption of similar procedures for administering, scoring, and interpreting the ABLE as described in the body of this report.
 - c. Use of the peer ratings total.
- 4. The LEQ and ABLE should be used in assigning MSGs and Detachment Commanders. For both of these instruments a composite score is available that generates an indication of probability of success in the program. Individuals with a low success probability should not be sent to high threat posts or where the risks of targeting or espionage are the greatest. In addition, the profiles of scale scores on the LEQ and ABLE should be clinically interpreted and factored into the assignment decision.
- 5. The screening and selection program should be monitored closely, once implemented, in order to make adjustments based on future personnel requirements, manpower supply, the international situation, etc. In conjunction with the current program, research has been under way to develop a continuing evaluation (CVAL) system for the field monitoring of MSG performance and behavior. The most parsimonious monitoring procedure would be to evaluate the quality of screening and selection decisions against the data obtained through the CVAL program.

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INTRODUCTION

Marine Security Guard Program

The use of Marines as security guards in overseas foreign posts was initiated in December 1948 by a formal Memorandum of Understanding between the Department of State and the Secretary of the Navy. The mission of Marine Security Guards (MSGs) is to provide security services at designated United States diplomatic and consular facilities to: (1) prevent the compromise of classified material and equipment which, if compromised, would cause serious damage to the national security interests of the United States and (2) provide protection for United States citizens and property within the principal building of the mission.

Marines serve in over 100 countries and independent cities at over 140 diplomatic missions. At the present time there are more than 1,400 Marines on duty at embassies, legations and consulates. Detachment size can range from six to 39 Marines; the average is about nine. Each detachment is commanded by a Marine senior non-commissioned officer (SNCO). The SNCO has a dual reporting responsibility. Within the Marine Corps chain of command he reports to one of seven companies that oversee the MSG program for the MSG Battalion. On a daily basis he is supervised by a state department official, usually a Regional Security Officer (RSO), who is responsible for the security of the embassy.

Every year approximately 900 Marines, with an average age of 22, attend the Marine Security Guard School, Quantico, VA, for training as MSGs. A much smaller number of SNCOs, with an average age of 31, are also trained at the school as Detachment Commanders. Five classes enter the school each year; the average class size is 164. About 70 percent of the entering Marines graduate and are assigned to MSG duty as MSGs or Detachment Commanders.

The eligibility requirements for MSGs:

1. Have a grade of Lance Corporal or higher.
2. Be unmarried and agree to remain unmarried until completion of their tour of duty.
3. Be a citizen of the United States.
4. Be a volunteer.
5. Have a completed Entry National Agency Check or a National Agency Check.
6. If a Corporal or below, have average conduct and proficiency markings of 4.2 and 4.2, respectively.

7. Have a minimum derived General Technical Aptitude Area (GT) score of 90 on the Armed Services Vocational Aptitude Battery.
8. Meet Marine Corps standards for personal appearance and have successfully passed their most recent physical fitness test.
9. Have at least 32 months obligated service remaining upon reporting to the school.

SNCOs must satisfy qualifications 3-9 above, but in addition:

1. May not have more than four dependents including their spouse.
2. Spouses and dependents must be United States citizens. They may be naturalized citizens or hold dual citizenship.
3. Staff Sergeants must have at least 1 year in grade.
4. Have at least 26 months obligated service remaining upon reporting to the school.

MSG duty is considered a choice assignment, especially since Marines who have successfully served are considered favorably by future selection boards. Detachment Commanders generally serve for 18 months at each of two different posts; tours are sometimes extended to include additional posts. MSGs serve from 15 months at each of two different locations. Assignments to certain designated posts are limited to 12 months. Marines must hold at least an interim Top Secret clearance before assignment overseas.

The MSG program has been a source of considerable pride to the Marines and has received favorable public attention in times of stressful circumstances in foreign countries, such as the takeover of the Embassy in Iran and the truck bombing of the Embassy in Lebanon. Late in 1986 and early 1987, however, there was considerable negative publicity regarding incidents at the Moscow Embassy and the extent of security compromise. An MSG, Sgt. Clayton Lonetree, was subsequently convicted of espionage.

While recognizing that the MSG program had been effective for 40 years, the Department of Defense (DoD) also felt that it would be appropriate to examine criteria for accepting and retaining Marines in the program. A memorandum was written in March 1987 from the Deputy Secretary of Defense to the Secretary of the Navy requested a critical examination of the characteristics required for successful performance of MSG duties. In May 1987, an interservice/agency conference on psychological assessment of specialized military units was convened at the MSG school. The outcome of the conference was a research agenda for the MSG program and the designation of PERSEREC to conduct research in support of the MSG Battalion.

Objective

The purpose of the research undertaken by PERSEREC was to provide the MSG Battalion with tests and procedures to improve the screening of Marines into the MSG school, the selection of students for MSG duty, and the evaluation of MSGs on embassy duty. A research program was established with four major components: (1) creation of a computer-based system for recording, scoring, and analyzing student background data; (2) development of procedures to be used in screening applicants for the MSG school; (3) design of a psychological assessment system to assist the MSG Screening Board in determining which students should be accepted for MSG duty; and (4) development of procedures for the continuing evaluation (CVAL) of the performance and behavior of MSGs on duty.

Research on the first component is completed and a system has been put in place at the MSG school. The system employs a biodata instrument developed for the program, the Life Experiences Questionnaire (LEQ), the development and interpretation of which is reported in Parker, Wiskoff, McDaniel, Zimmerman, and Sherman (1989). The LEQ is also used as part of the assessment by the MSG Screening Board. Work on the development of continuing evaluation procedures (the fourth component) is in progress and will be reported in the future. The second and third components (i.e., screening and selection) are the subject of this report.

The overall focus of research on the MSG screening and selection system is to minimize personnel turbulence (reassignments and turnover) and to reduce the risk of personnel security incidents. In designing the system, the aim was to: (1) utilize existing operational personnel records and background information, where available; (2) reduce MSG school attrition, if possible; (3) develop tests and procedures that could be used to screen Marines when they apply to the MSG program; and (4) develop a system, to be employed at the MSG school, to select students for MSG duty, which should complement the school screening procedures.

PROCEDURE

Approach

The research approach focused on the validation of biographical data and psychological tests against criteria of MSG school and job performance. As a first step, current eligibility factors employed to screen and select Marines into the MSG program were obtained and reviewed. Next, a search was conducted for additional predictors of performance, with primary emphasis placed upon those measures and instruments that had demonstrated validity in earlier research with the MSGs and with other Marine Corps enlisted personnel. Consideration was also given to other Service or private sector tests that had been successfully used in predicting performance in similar types of jobs and environments.

The research design involved collecting and correlating predictor and criterion data at the MSG school and at MSG duty sites. Starting in the fall of 1987 with class 4-87², experimental test instruments (to be described in the next section) were administered to eight consecutive classes at the MSG school. A total of 1,311 incoming students were tested, including 1,186 MSGs and 125 Detachment Commanders. The actual number of students who took each test varied, since not all tests were given to each class. It should be noted that, because of the small number of Detachment Commander students, certain analyses were conducted only for combined samples of MSGs and Detachment Commanders. For each of these students three performance measures were obtained: (1) the Screening Board recommendation; (2) a final school grade; and (3) peer evaluations during school. In the summer of 1988, data were collected for a set of experimental tests administered to MSGs serving on embassy duty. Many of these Marines had already taken the tests in school and were not required to take the tests again; these individuals will be referred to as the predictive sample. The concurrent sample consists of those Marines who took the tests at their MSG duty sites. For all Marines on duty, structured ratings of their performance were obtained from peers and supervisors.

Predictor Data Collected at the MSG School

An experimental battery of predictor tests was assembled and administered to incoming students at the MSG school. Student testing was accomplished as early as possible after a class arrived at the MSG school, but no later than the end of the

²The five classes entering MSG school each year are numbered consecutively, so class 4-87 represents the fourth class for 1987.

first week. Tests were administered to the entire class in one group session under standardized testing conditions. As the program evolved, the composition of the test battery was modified. Accordingly, not all classes received the same tests, although several of the instruments were given to all students. The test battery encompassed personality, motivation, interest, attitude, and background domains. In addition, aptitude and achievement measures were obtained from available personnel and MSG school records.

Table 1 displays the instruments that were administered at the MSG school. It also contains the classes and number of students to whom each instrument was administered. For example, the SAB was given to classes 5-87 through 1-89, for a total n of 1,189. The LEQ was given to a total of 798 students. However, as shown in the table, somewhat different versions were administered to classes 2-88, 3-88, and 4-88 through 1-89. The following paragraphs contain a brief description of the tests listed in Table 1.

Life Experiences Questionnaire (LEQ)

The LEQ is a background questionnaire that was developed by PERSEREC for the MSG program (Parker et al., 1989). The questionnaire consists of 200 items that are grouped into scoreable scales, as discussed below. The alpha reliability coefficient for each scale is shown in parentheses following the scale name.

Eleven of the scales are content-homogeneous in nature. These scales are mutually exclusive clusters of items derived by factor-analytic techniques. Each scale is designed to measure a single construct. The content-homogeneous scales include: Traditional Values (.64), High School Academics (.79), High School Adjustment (.68), High School Sociability (.64), Home/Family Life (.69), Legal/Alcohol Trouble (.51), Conscientiousness (.76), Cooperativeness (.77), Physical Fitness/Smoking (.59), Ethical Conservatism (.71), and Social Desirability (.67).

In contrast to the content-homogeneous scales, there are also five nonhomogeneous scales (i.e., scales which are not designed to measure a single construct). Four of these scales were developed for specific purposes. The Parker-Fitz scale captures the content areas of an open-ended questionnaire formerly administered at the MSG school. The Sherman Critical scale is designed to highlight responses that may be of clinical concern. The Random Response scale detects careless responding in completing the LEQ. The S-Scale provides an alternate measure of predicting school success for those individuals who attempt to "fake good." The fifth nonhomogeneous scale, Total Adjustment, is the sum of raw scores on six content-homogeneous scales (High School Academics, High School

Table 1
Predictors Administered to MSG Students

INSTRUMENT	SCALES			CLASSES TESTED	N
LEQ ^a	H.S. Academics Sherman Critical	H.S. Adjustment Random Response	Legal/Alcohol Trouble	Parker-Fitz	209
	H.S. Academics Conscientiousness Random Response	H.S. Adjustment Total Adjustment	H.S. Sociability Parker-Fitz	Legal/Alcohol Trouble Sherman Critical	187
	Traditional Values Home/Family Life Physical Fit/Smoking Sherman Critical	H.S. Academics Legal/Alcohol Trouble Ethical Conservatism Random Response	H.S. Adjustment Conscientiousness Social Desirability S-Scale	H.S. Sociability Cooperativeness Parker-Fitz Total Adjustment	402
SAB	C1- Dominance C2- Well Being C3- Good Natured C4- Exhibitionism	C5- Organization C6- Age C7- Extroversion C8- Methodical	C9- Religious/Abstinence C10-Even Tempered C11-Hard Working C12-Cautious	C13-Marriage C14-Stable C15-Spontaneity C16-Delinquency	1189
ABLE	Emotional Stability Nondelinquency Energy Level Self-Knowledge	Self-Esteem Traditional Values Dominance Random Response	Cooperativeness Work Orientation Physical Condition Poor Impression	Conscientiousness Internal Control Social Desirability	798
16PF	Warm Enthusiastic Suspicious Experimenting Extraversion	Intelligent Conscientious Imaginative Self-Sufficient Anxiety	Emotionally Stable Bold Shrewd Controlled Tough Poise	Assertive Tender minded Apprehensive Tense Independence	1312
CAQ	Hypochondriasis Low Energy Depression Psychopathic Deviation Faking Good	Suicidal Depression Guilt/Resentment Schizophrenia	Agitation Bored Depression Psychasthenia	Anxious Depression Paranoia Psych. Inadequacy	1189
MAT	Career Responsibility Self-Assertion	Dependency Self-Concept Affection	Security Heterosexuality	Self-Indulgent Hostility	1312
APOI	Ego Development Intellectual Curiosity	Sociability Traditional Values	Resiliency/Energy Support	Adventure/Modernity	798
SEI	Career Stress	Family Stress	Personal Stress	Total Stress	798

^a Since early versions of the LEQ were administered to classes 2-88 and 3-88, not all scales are available for these two classes.

Adjustment, High School Sociability, Legal/Alcohol Trouble, Conscientiousness, and Cooperativeness).

Special Assignment Battery (SAB)

The SAB is a biodata instrument developed in response to the United States Marine Corps and Navy's need for a tool to aid in the selection of personnel for special assignments, such as recruiters, drill instructors, or recruit company commanders (Atwater, Abrahams, & Trent, 1986). Previous research with the SAB used empirical keying of responses to predict success in special assignments. A study by Urban and McDaniel (1989) determined that the underlying structure of the SAB consisted of the following 16 clusters (alpha reliabilities are presented in parentheses): Dominance (.76), Well Being (.73), Good Natured (.77), Exhibitionism (.75), Organization (.74), Age (.78), Extroversion (.82), Methodical (.62), Religious/Abstention (.41), Even Tempered (.70), Hard Working (.53), Cautious (.70), Marriage (.73), Stable (.58), Spontaneity (.54), and Delinquency (.62).

Assessment of Background and Life Experiences (ABLE)

The ABLE is a biodata instrument designed by the Army for use in screening and classifying enlisted personnel (Hough, McGue, Kamp, Houston, & Barge, 1985). The ABLE has 11 substantive scales: Emotional Stability, Self-Esteem, Cooperativeness, Conscientiousness, Nondelinquency, Traditional Values, Work Orientation, Internal Control, Energy Level, Dominance, and Physical Condition. It also has four validity scales: Social Desirability, Self-Knowledge, Random Response, and Poor Impression.

Sixteen Personality Factor Questionnaire (16PF)

The 16PF is a widely used personality measurement instrument (Cattell, Eber, & Tatsuoka, 1970). Scales of the 16PF are bipolar. The following are the descriptors for the high end of each scale: Warm, Intelligent, Emotionally Stable, Assertive, Enthusiastic, Conscientious, Bold, Tender-minded, Suspicious, Imaginative, Shrewd, Apprehensive, Experimenting, Self-Sufficient, Controlled, and Tense. Scores for four second-order factors (Extraversion, Anxiety, Tough Poise, and Independence), derived from the above 16 scales, were also calculated.

In addition, a large number of 16PF composite scale scores were calculated. These scales were developed and validated by the Institute for Personality and Ability Testing (IPAT) in the course of performing research for various clients. These

include: (1) a series of nine occupational (bipolar) scales (Police 1, Freedom from Accidents, Psychological Technician, Counselor, Football Player, Police 2, Janitor, Alcoholic, and Criminal); (2) three composite scales developed by IPAT to evaluate the performance of US Nuclear Regulatory Agency personnel (Decision, Decision Rank, and Decision Model Index); (3) two measures (MSG School Performance and MSG Field Performance) developed in a study by Sherman, Bergin, and Schmidt (1978) to help evaluate MSG school and field performance; and (4) nine selected scales (Control, Depression, Psychoticism, Neuroticism, Leadership, Accident Proneness, Integration, Interest, and Conflict). Scale names reflect high scores on the scales.

Motivation Analysis Test (MAT)

The MAT is a complex instrument used in education, psychological clinics, and in industrial personnel work (Cattell, Horn, Sweney, & Radcliffe, 1964). The scales of the test measure the following 10 "unitary motivation systems": Career, Dependency, Security, Self-Indulgent, Responsibility, Self-Concept, Heterosexuality, Hostility, Self-Assertion, and Affection. Scores from the four subtests of the instrument are combined in two different ways to give both an integrated (conscious) and unintegrated (unconscious) component score for each of the 10 scales. High scores reflect positive association with the scale dimension. The version of the MAT administered to MSG candidates consists of 126 questions.

Clinical Analysis Questionnaire (CAQ)

The CAQ was designed to complement the 16PF by providing better coverage of psychological pathology (Krug & Cattell, 1980). In particular, it seeks to provide a better understanding and identification of disorders where depression and psychosis are central features. Like the 16PF, its scales have undergone many years of clinical application and validation. Clinical scales of the CAQ include coverage of the following problem areas: Hypochondriasis, Suicidal Depression, Agitation, Anxious Depression, Low Energy Depression, Guilt/Resentment, Bored Depression, Paranoia, Psychopathic Deviation, Schizophrenia, Psychasthenia, and Psychological Inadequacy. The scale names indicate their high-score meanings. The Faking Good scale is also provided to help verify the validity of responses. The test consists of 144 items.

Attitudes, Preferences, and Opinions Inventory (APOI)

The APOI is a temperament inventory developed by Dunnette Research Associates (Hough, Dunnette, Carter, & Keyes, 1986). It is designed to predict work

performance and adjustment to work, specifically while living and working abroad. The items on the APOI are drawn from previous research in the areas of personality and lifespan development and from critical incidents provided by former corporate executives. The complete inventory consists of 15 content scales and two response-validity scales. Only seven of the content scales were chosen to be included in the administration to MSGs. This reduction in test size was due, in large part, to the limited test-taking time available to students. Decisions concerning which specific scales should be dropped were based on two considerations. The first was the appropriateness, for this research effort, of the items belonging to the scale. For instance, questions directed to married persons and attitudes concerning poverty were among those that were dropped. The second consideration was whether the content area of those scales was already well-covered by other instruments. The scales that were retained measure the following constructs: Ego Development, Sociability, Resiliency/Energy, Adventurousomeness/Modernity, Intellectual Curiosity, Traditional Values, and Support. High scores reflect positive association with the scale names.

Stress Evaluation Inventory (SEI)

The SEI was developed in order to provide a measure for stress-related problems identified by clinical psychologists and IPAT research personnel (Institute for Personality and Ability Testing, 1983). The instrument consists of four clinical scales that each assess a major stress area. They are: Career Stress, Family Stress, Personal Stress, and Total Stress. Thirty items make up the entire SEI and high scores reflect high stress.

Criteria Collected at the MSG School

Training records, obtained from the MSG Battalion for classes 4-87 through 1-89, provided the three types of criterion measures related to performance in MSG school. These measures are: (1) pass/fail status; (2) final composite academic score; and (3) peer ratings. However, the peer rating measures were not included for classes 5-88 or 1-89 because of limited time and data entry resources.

Pass/fail status is simply the final outcome of the Screening Board evaluation. The Board consists of Marine, Navy, and State Department officials who review a student's records and interview the student during the third or fourth week of training to recommend to the commanding officer whether the student should be allowed to serve on MSG duty.

Final score is taken from the Detachment Commander and MSG Class Standing Computation Sheets. It is composed of scores on Academic Performance, Physical Fitness, Weapons Qualification, and Practical Application. In addition, the final score for MSGs includes a measure called Professional Performance Evaluation, while that for Detachment Commanders includes a score on Administrative Training. For both types of students, final score is a simple average of the five measures.

The last set of criterion measures, peer ratings, are a product of the peer evaluation program developed by MSG school, the results of which are used by the Screening Board in the recommendation process. Peer ratings are obtained from the Contemporary Leadership Evaluation Form, which is completed at the end of the second or the beginning of the third week by every member of the detachment to which the individual belongs. Average detachment size for the classes under consideration was 16. A six-point rating scale (Unacceptable = low, Outstanding = high) is employed to measure the following 12 characteristics: Personal Relations, Loyalty, Cooperation/Teamwork, Maturity, Integrity/Trustworthiness, Endurance/Physical Fitness, Personal Appearance, Drinking Habits/Behavior, Liberty Habits/Behavior, Attitude Toward MSG Duty, Motivation/Effort, and Self-Confidence. While an additional set of ratings is provided for Detachment Commanders, it was decided that the analyses would be limited to the rating characteristics common to both groups of students.

Table 2 provides means, standard deviations, and interrater reliability estimates³ for the 12 peer rating scales. Means scores are only moderately skewed towards the upper end of the six-point rating scale, indicating acceptable variability in response. The interrater reliability coefficients demonstrate good agreement among raters.

A principal components analysis was performed on the peer rating data, for MSGs and Detachment Commanders combined, to determine the nature of the underlying structure of the ratings. A scree plot of the eigenvalues of the correlation matrix seemed to indicate that solutions should be examined for two, three, four, and six factors. These solutions accounted for 76, 84, 87, and 92 percent of the variance among the variables, respectively. For each of these analyses, a Promax rotation was employed, based on a value of $k = 3^4$ (Rummel, 1970). The four-factor solution

³Interrater reliability was estimated using a within-group interrater reliability coefficient (James, Demaree, & Wolf, 1984) with the uniform distribution being used as the expected distribution if there is no agreement among raters.

⁴All of the factor analyses described in this report employed a Promax rotation with $k = 3$.

Table 2
Means, Standard Deviations and Interrater Reliabilities
for MSG School Peer Ratings

<u>PEER RATING SCALES</u>	<u>MEAN</u>	<u>S.D.</u>	<u>INTERRATER RELIABILITY</u>
Personal Relations	4.34	1.11	0.70
Loyalty	4.59	1.06	0.67
Cooperation/Teamwork	4.51	1.10	0.67
Maturity	4.39	1.13	0.69
Integrity/Trustworthiness	4.62	1.05	0.70
Endurance/Physical Fitness	4.33	1.11	0.75
Personal Appearance	4.38	1.03	0.70
Drinking Habits/Behavior	4.76	1.11	0.67
Liberty Habits/Behavior	4.63	1.08	0.70
Attitude Toward MSG Duty	4.66	1.08	0.67
Motivation/Effort	4.45	1.12	0.69
Self-Confidence	4.51	1.09	0.73

Note: Means and Standard Deviations based on a six-point rating scale.

yielded the most interpretable results. These factors were labeled Professionalism, Military Bearing, Drinking/Liberty, and Overall Motivation. The factor pattern loading matrix for this solution is displayed in Table 3. In order to compute factor scores, each variable was assigned to the factor on which it loaded the highest, then a unit-weighted composite was derived for each factor. In addition, a unit-weighted composite of all the peer ratings was used as a fifth criterion measure. Thus, together with pass/fail status and final score, seven school criterion measures were used in the study.

Tables 4 and 5 present the intercorrelations among the seven MSG school criteria for MSGs and Detachment Commanders, respectively⁵. The relationships among the various criteria tended to be low to moderate, except for the intercorrelations among the four peer rating factors and the total for the ratings. The correlations between pass/fail and peer ratings are moderate for MSGs and higher for Detachment Commanders. Those between final score and peer ratings tended to be somewhat smaller, especially for MSGs. In general, the strongest relationships were among the four peer rating factors and the total for the ratings.

⁵Correlations between pass/fail status and final score are not presented because individuals who failed were not given final scores.

Table 3
Factor Loadings of MSG School Peer Ratings

<u>RATING SCALES</u>	<u>PEER RATING FACTORS</u>			
	<u>PROFESSIONALISM</u>	<u>MILITARY BEARING</u>	<u>DRINKING/LIBERTY</u>	<u>OVERALL MOTIVATION</u>
Personal Relations	1.0	.08	-.04	-.14
Loyalty	.83	.02	.10	.07
Cooperation/Teamwork	.82	-.08	-.06	.21
Maturity	.79	-.01	.00	.15
Integrity/Trustworthiness	.74	-.01	.17	.12
Endurance/Physical Fitness	-.05	1.0	.05	-.09
Personal Appearance	.11	.62	.01	.30
Drinking Habits/Behavior	-.11	.03	.98	.05
Liberty Habits/Behavior	.38	.02	.69	-.01
Attitude Toward MSG Duty	.15	-.07	.13	.82
Motivation/Effort	.21	.16	-.01	.70
Self-Confidence	.36	.33	-.12	.42

Note: Sample size is 790.

Table 4

Intercorrelations of MSG School Criteria for MSGs

<u>PEER RATINGS</u>	<u>PASS/ FAIL</u>	<u>FINAL SCORE</u>	<u>PEER RATINGS</u>			
			<u>PROFESSIONALISM</u>	<u>MILITARY BEARING</u>	<u>DRINKING LIBERTY</u>	<u>OVERALL MOTIVATION</u>
Professionalism	.35**	-.01				
Military Bearing	.34**	.14**	.57**			
Drinking/Liberty	.16**	.00	.61**	.44**		
Overall Motivation	.46**	.08	.85**	.73**	.56**	
Ratings Total	.38**	.05	.94**	.76**	.73**	.94**

** $p < .01$

Note: Sample size varies from 629 to 823.

Table 5

Intercorrelations of MSG School Criteria for Detachment Commanders

<u>PEER RATINGS</u>	<u>PASS/ FAIL</u>	<u>FINAL SCORE</u>	<u>PEER RATINGS</u>			
			<u>PROFESSIONALISM</u>	<u>MILITARY BEARING</u>	<u>DRINKING LIBERTY</u>	<u>OVERALL MOTIVATION</u>
Professionalism	.63**	.13				
Military Bearing	.38**	.36*	.51**			
Drinking/Liberty	.44**	.14	.66**	.58**		
Overall Motivation	.68**	.48**	.85**	.62**	.65**	
Ratings Total	.65**	.34*	.93**	.73**	.79**	.93**

* $p < .05$

** $p < .01$

Note: Sample size varies from 59 to 76.

Data Collected at MSG Duty Sites

In addition to validating predictors against measures of school performance, the research approach specified that the predictors would be evaluated against on-job performance indices. To obtain the required predictor and criterion data, PERSEREC mailed packets of tests and evaluation forms to all MSG Companies and Detachments in June, 1988 (Houston, 1989). The procedures for obtaining predictor and criterion information are briefly reviewed below in the next two sections.

The Marine Security Guard Test Battery

By the spring of 1988, five classes of Marines who had been tested at the MSG school had graduated and were on MSG duty. However, many Marines had graduated prior to the initiation of the testing program.

It was, therefore, decided that concurrent with the collection of performance data at MSG duty sites, tests would be administered to Marines who had not taken them in MSG school. A Marine Security Guard Test Battery was compiled containing the following tests in three booklets:

1. Booklet 1...the 16PF and the CAQ
2. Booklet 2...the MAT and SEI
3. Booklet 3...the SAB, APOI and the ABLE.

Descriptions of these instruments have been provided earlier. The MSG Test Battery, along with an Instruction Handbook for Administration, was sent from PERSEREC to all 140 MSG Detachments in June, 1988. This mailing had been preceded by a message from the MSG Battalion to all Companies and Detachments stating the importance of the study and encouraging cooperation. All MSGs and Detachment Commanders, with at least two months' tenure at the detachment, were to complete all the tests, with the exception of Marines from Classes 5-87, 1-88, and 2-88 who only needed to complete Booklet 3. Two months was selected as the minimum period of time required for a Marine to be at a detachment before a reliable evaluation of his performance could be obtained. Given that individuals with less tenure at a detachment were not included in the job performance portion of the study, there was no need for them to complete the test battery.

To insure that Marines responded seriously and honestly, a letter from the MSG Battalion was included in each test packet. The letter stressed the importance of the study and indicated that all responses would be held in the strictest of confidence and would not be seen by any member of the Battalion.

The Test Battery required between three and four hours to complete. It was recommended that, because of the length of the testing, Booklets 1 and 2 be administered together and Booklet 3 be administered at a separate time. The instructions indicated that the Test Battery should be administered by the Detachment Commander to MSGs in group settings. MSGs were instructed not to show their answers to anyone and to place their own answer sheets in the individual return envelopes provided. A follow-up message was sent in the fall of 1988 to detachments that had not responded.

Predictor data were obtained from a total of 808 MSGs and 100 Detachment Commanders. Sample sizes for specific tests varied depending on instructions as to which booklets were to be completed and on how many Marines were available.

Measures of MSG Duty Performance

Existing measures of MSG duty performance were reviewed and judged to be inadequate criteria for validating screening and selection tests. MSG duty is unlike any other in the Marine Corps. For example, performance on the job requires considerable interaction with individuals in foreign countries and is conducted in a closer relationship to State Department individuals than to other military personnel. Because of the unique aspects of the job, it was determined that measures of performance and behavioral reliability specific to MSGs should be developed. There is currently no structured rating system similar to the MSG school peer evaluation program in place at duty sites. A project was initiated with Personnel Decisions Research Institute (PDRI) to develop such measures (Houston, 1989). Behaviorally anchored performance rating scales were designed for both MSGs and Detachment Commanders, based on analyses of the jobs and specific recommendations from Marines at MSG Battalion, Company, and Detachment levels.

For MSGs, separate seven-point rating scales were developed for 16 categories of job behavior and 10 personal characteristics. MSG Job Behavior Category Ratings included: Controlling Access, Performing Security Inspections/ Handling Classified Materials, Escorting Personnel, Maintaining Logs/Writing Reports, Maintaining Alertness, Use of Weapons/Special Protective Equipment (SPE), Reacting to Emergencies/Drills, Additional Duties, Physical Fitness, Personal Appearance, Keeping Others Informed, Interacting with Others, Drinking Behavior, Liberty Behavior, and Overall Performance. MSG Personal Characteristics Ratings addressed the following categories: Initiative/Leadership, Motivation/Effort, Cooperativeness, Sociability, Emotional Stability, Maturity/Self-Discipline, Honesty/Integrity/Ethics, Dependability, Attention to Detail, and Adaptability. As an example of a job behavior rating scale, the scale for Liberty Behavior is reproduced in Figure 1.

LIBERTY BEHAVIOR: Respecting local customs and regulations; conducting self in a responsible and mature manner while on liberty, avoiding incidents which may embarrass the U. S. government or provoke hostility from local government, following Marine regulations regarding curfews, Marine House visitors, use of Marine vehicles, and liberty regulations.

1	2	3	4	5	6	7
<u>Low</u>		<u>Average</u>			<u>Superior</u>	

A person who is LOW in this category (rating of 1 or 2):

- Frequently violates regulations regarding curfew, Marine House visitors, use of Marine vehicles, or liberty regulations.
- Does not respect local customs and regulations, for example, those governing religion (such as entering a mosque); acts irresponsibly while on liberty, and may provoke hostility from local government and/or cause the U.S. government extreme embarrassment.

A person who is SUPERIOR in this category (rating of 6 or 7):

- Always follows regulations regarding curfew, Marine House visitors, use of Marine vehicles, and liberty regulations.
- Always respects local customs and regulations, and conducts self in a responsible and mature manner while on liberty.

Figure 1. Example of a Job Behavior Rating Scale for MSGs

For Detachment Commanders, the following job behavior category ratings were developed and were used along with the same 10 personal characteristic rating scales for MSGs: Checking/Monitoring MSGs, Training MSGs, Performing Security Duties, Performing Administrative Duties, Providing Guidance/Advice, Performing Counseling and Discipline, Establishing and Maintaining Detachment Morale/Rapport, Interacting with the Diplomatic Community and Foreign Nationals, Reacting to Emergencies/Crises, Personal Conduct, and Overall Performance.

Criteria of MSG Duty Performance

Houston (1989) documented the administration of the job performance measures at MSG duty sites. For MSGs, ratings of performance were obtained from their Detachment Commander and from other MSGs in the detachment. Detachment Commanders were evaluated by their MSGs, by their resident Regional or Post Security Officer (RSO/PSO), and by their USMC company officers.

Responsibility for insuring that ratings were performed was delegated to the Detachment Commander. Confidentiality of ratings was stressed and raters were instructed not to show or discuss their ratings with anyone else. Ratings were to be placed in envelopes provided and sealed by the rater prior to mailing back to PDRI.

Completed rating forms were received from 118 of the 140 detachments, an 84 percent return rate. Of the 118 detachments, all requested evaluations were received for 83, all forms except RSO evaluations for 24, all forms except company evaluations for five and all forms except RSO and company evaluations for six. Some data are missing due to the instruction to rate only those Marines with at least two months' tenure at their current post.

In all, ratings of MSGs were completed by 896 of their peers, while 664 MSGs were rated by Detachment Commanders. The average numbers of MSG peer ratings per individual ratee was six. Even though large detachments had as many as 36 MSGs on board, MSGs were generally rated by smaller groups within the large detachments. A total of 120 Detachment Commanders were rated by their subordinate MSGs, 90 were rated by the RSO or PSO at their post, and 120 were rated by the Company Commander.

Table 6 contains the means, standard deviations, and interrater reliabilities of the ratings of MSG performance by peers and Detachment Commanders. It is evident that the ratings are skewed toward the upper end of the seven-point rating scale. This reduction in criterion variance serves to restrict the magnitude of the relationships between the predictors and the criteria. Table 6 also indicates that while peer ratings tend to be somewhat lower than the ratings made by Detachment Commanders, the latter set of ratings show greater differentiation among MSGs. Interrater reliability coefficients are fairly high and show that peers are in basic agreement about a given ratee's performance scores.

Table 6

**Means, Standard Deviations and Interrater Reliabilities for
Ratings of MSG Job Performance**

<u>JOB BEHAVIOR CATEGORY RATING SCALES</u>	SOURCE OF RATINGS				
	PEERS			DETACHMENT COMMANDERS	
	MEAN	S.D.	INTERRATER RELIABILITY	MEAN	S.D.
Controlling Access	5.90	0.58	0.77	6.25	0.94
Performing Security Inspections/ Handling Classified Materials	5.80	0.66	0.75	6.16	0.93
Escorting Personnel	5.97	0.56	0.77	6.30	0.82
Maintaining Logs/Writing Reports	5.81	0.63	0.75	5.97	1.03
Maintaining Alertness	5.77	0.63	0.74	6.09	1.08
Use of Weapons/Special Protective Equipment (SPE)	6.11	0.55	0.78	6.40	0.84
Reacting to Emergencies/Drills	5.89	0.63	0.75	6.23	1.00
Additional Duties	5.60	0.77	0.72	5.84	1.14
Physical Fitness	5.75	0.85	0.75	6.08	1.13
Personal Appearance	5.86	0.66	0.76	6.26	0.95
Keeping Others Informed	5.60	0.67	0.71	5.81	1.03
Interacting with Others	5.60	0.80	0.69	5.96	1.10
Drinking Behavior	5.80	0.85	0.71	6.21	1.15
Liberty Behavior	5.83	0.71	0.72	6.22	1.02
Overall Performance	5.86	0.63	0.80	6.17	0.91

<u>PERSONAL CHARACTERISTICS RATING SCALES</u>	PEERS			DETACHMENT COMMANDERS	
	MEAN	S.D.	INTERRATER RELIABILITY	MEAN	S.D.
	MEAN	S.D.	INTERRATER RELIABILITY	MEAN	S.D.
Initiative/Leadership	5.43	0.78	0.72	5.72	1.05
Motivation/Effort	5.55	0.74	0.73	5.88	1.08
Cooperativeness	5.71	0.72	0.72	6.19	1.02
Sociability	5.71	0.76	0.72	6.12	1.03
Emotional Stability	5.78	0.70	0.74	6.17	1.03
Maturity/Self-Discipline	5.70	0.78	0.72	6.08	1.01
Honesty/Integrity/Ethics	5.97	0.68	0.75	6.38	0.93
Dependability	5.82	0.73	0.74	6.20	1.01
Attention to Detail	5.66	0.69	0.74	5.91	0.99
Adaptability	5.87	0.66	0.74	6.21	0.92

Note: Means and Standard Deviations based on seven-point rating scale.

Correlations between peer ratings and Detachment Commander ratings of MSG job performance are given in Table 7. The magnitude of the correlation coefficients indicates a relatively low agreement between the two groups, especially on such scales as Escorting Personnel, Controlling Access, and Reacting to Emergencies/Drills. Scales on which the most agreement was seen are Physical Fitness, Maturity/Self-Discipline, Interacting with Others, Drinking Behavior, and Liberty Behavior.

Table 7

**Correlations Between MSG Job Performance
Ratings by Detachment Commanders and Peers**

JOB BEHAVIOR CATEGORY RATING SCALES

Controlling Access	.20
Security Inspects/Class. Materials	.32
Escorting Personnel	.13
Maintaining Logs/ Writing Reports	.31
Maintaining Alertness	.35
Use of Weapons/SPE	.24
Reacting to Emergencies/Drills	.21
Additional Duties	.35
Physical Fitness	.54
Personal Appearance	.34
Keeping Others informed	.30
Interacting with Others	.44
Drinking Behavior	.45
Liberty Behavior	.43
Overall Performance	.36

PERSONAL CHARACTERISTICS RATING SCALES

Initiative/Leadership	.40
Motivation/Effort	.38
Cooperativeness	.35
Sociability	.39
Emotional Stability	.34
Maturity/Self-Discipline	.45
Honesty/Integrity/Ethics	.31
Dependability	.36
Attention to Detail	.36
Adaptability	.26

Note: Sample size varies from 662 to 667.

A principal components analysis was performed for both sets of MSG performance ratings. For the peer ratings, three- and four-factor solutions were considered, based on examination of the scree plot. The three-factor solution, which accounted for 73 percent of the variance, yielded the best results. The rotated factors for this solution were labeled Core Duties, Personal Qualities, and Self-Discipline. The factor pattern loading matrix is shown in Table 8.

Two-, three-, and four-factor solutions were examined for the ratings made by Detachment Commanders. The four-factor solution, which was selected on the basis of interpretability, accounted for 67 percent of the variance among the variables. These factors were labeled Core Duties, Interpersonal, Overall Effort, and Self-Discipline⁶. The matrix of factor loadings is provided in Table 9.

Tables 10 and 11 display the correlations among the factors for the two solutions. Overall, there tends to be a higher degree of intercorrelation among the factors derived from the peer ratings than those resulting from the Detachment Commander ratings.

The means and standard deviations of the job performance ratings of Detachment Commanders by MSGs, RSOs, and Company Commanders are presented in Table 12. MSGs tended to give slightly higher ratings than the other two groups.

Correlations between the ratings made by the three groups are shown in Table 13. It is obvious that there is very little agreement among the three groups on how well Detachment Commanders perform on each of the dimensions.

All three sets of Detachment Commander ratings were factor-analyzed, but the ratings made by Company Commanders and those by MSGs did not yield interpretable factor structures. The primary reason for this appears to be that the first unrotated factor, for both types of ratings, was a global one which accounted for over 70 percent of the variance among the variables. For the principal components analysis of RSO ratings of Detachment Commanders, three- and four-factor solutions were examined. The four-factor solution provided a more interpretable solution; this solution accounted for 75 percent of the variance. The rotated factors for this solution were labeled Core Duties, Interpersonal, Self-Discipline, and Relationship with Detachment. The factor pattern loading matrix is shown in Table 14.

⁶Although the labels Core Duties and Self-Discipline were used in both the peer and Detachment Commander solutions, there are some differences in the variables that make up these factors in the two solutions.

Table 8

Factor Loadings of MSG Job Performance Ratings by Peers

<u>RATING SCALES</u>	<u>PERFORMANCE RATING FACTORS</u>		
	<u>CORE DUTIES</u>	<u>PERSONAL QUALITIES</u>	<u>SELF-DISCIPLINE</u>
Controlling Access	.93	-.14	.03
Security Inspects/Class Materials	.88	-.09	-.02
Maintaining Alertness	.85	.00	.03
Maintaining Logs/Writing Reports	.82	.01	.03
Escorting Personnel	.78	.00	.07
Reacting to Emergencies/Drills	.77	.17	-.10
Attention to Detail	.66	.19	.11
Keeping others informed	.63	.31	-.01
Use of Weapons/SPE	.63	.08	.12
Additional Duties	.62	.25	.00
Overall Performance	.55	.29	.20
Interacting with others	-.07	1.0	-.15
Sociability	-.09	1.0	-.10
Cooperativeness	.09	.78	.07
Adaptability	.12	.68	.16
Emotional Stability	.03	.68	.24
Motivation/Effort	.37	.52	.07
Initiative/Leadership	.49	.49	-.03
Dependability	.36	.45	.19
Honesty/Integrity/Ethics	.19	.43	.35
Drinking Behavior	-.03	-.18	1.0
Liberty Behavior	.02	.08	.83
Maturity/Self-Discipline	.04	.40	.56
Personal Appearance	.38	.10	.38
Physical Fitness	.22	.12	.36

Note: Sample size is 895.

Table 9

Factor Loadings of MSG Job Performance Ratings by Detachment Commanders

RATING SCALES	PERFORMANCE RATING FACTORS			
	CORE DUTIES	INTERPERSONAL	OVERALL EFFORT	SELF-DISCIPLINE
Controlling Access	.93	-.13	-.05	.07
Escorting Personnel	.90	-.06	-.18	.11
Security Inspects/Class Materials	.77	-.01	.07	-.02
Use of Weapons/SPE	.69	.03	.08	.00
Maintaining Logs/Writing Reports	.68	.08	.11	-.11
Maintaining Alertness	.65	.22	.10	-.01
Reacting to Emergencies/Drills	.49	.11	.28	-.04
Overall Performance	.39	.17	.33	.14
Keeping others informed	.36	.30	.36	-.16
Sociability	-.01	1.0	-.22	-.03
Interacting with others	-.01	.96	-.08	-.10
Emotional Stability	-.05	.69	.12	.14
Cooperativeness	.08	.62	.14	.06
Adaptability	.09	.56	.18	.09
Additional Duties	-.01	-.13	.96	-.08
Physical Fitness	-.05	-.13	.82	.00
Motivation/Effort	-.04	.24	.70	.04
Initiative/Leadership	.11	.21	.63	-.02
Attention to Detail	.32	.01	.50	.02
Personal Appearance	.16	-.08	.46	.25
Dependability	.15	.11	.42	.30
Drinking Behavior	-.04	-.10	-.06	.95
Liberty Behavior	.04	.08	.04	.76
Honesty/Integrity/Ethics	.16	.28	-.04	.54
Maturity/Self-Discipline	-.07	.39	.24	.40

Note: Sample size is 628.

Table 10

Intercorrelations of MSG Job Performance Ratings by Peers

	<u>CORE DUTIES</u>	<u>PERSONAL QUALITIES</u>	<u>SELF-DISCIPLINE</u>
Personal Qualities	.83**		
Self-Discipline	.76**	.76**	
Total Composite	.95**	.95**	.87**

** $p < .01$

Note: Sample size is 900.

Table 11

Intercorrelations of MSG Job Performance
Ratings by Detachment Commanders

	<u>CORE DUTIES</u>	<u>INTERPERSONAL</u>	<u>OVERALL EFFORT</u>	<u>SELF-DISCIPLINE</u>
Interpersonal	.68**			
Overall Effort	.81**	.70**		
Self-Discipline	.64**	.69**	.69**	
Total Composite	.92**	.85**	.92**	.82**

** $p < .01$

Note: Sample size varies from 633 to 661.

Table 12

Means and Standard Deviations for Ratings of Detachment Commander Job Performance

JOB BEHAVIOR CATEGORY RATING SCALES	SOURCE OF RATINGS					
	MSGs			RSOs		
	MEAN	S.D.		MEAN	S.D.	COMPANY COMMANDERS
Checking/Monitoring MSGs	5.95	0.67		5.65	1.18	MEAN 5.29 S.D. 1.33
Training MSGs	5.74	0.84		5.62	1.20	5.50 1.34
Performing Security Duties	6.01	0.76		5.97	0.97	5.92 1.08
Performing Administrative Duties	6.12	0.82		5.74	1.13	5.35 1.31
Providing Guidance/Advice	5.82	0.80		5.48	1.16	5.28 1.34
Providing Performance Evaluation and Discipline	5.79	0.74		5.53	1.24	5.27 1.39
Establishing and Maintaining Detachment Morale/Rapport	5.68	0.93		5.70	1.23	5.39 1.35
Interacting with the Diplomatic Community and Foreign Nationals	5.80	0.83		5.29	1.23	5.46 1.36
Reacting to Emergencies/Crises	5.98	0.72		5.81	1.08	5.53 1.21
Personal Conduct	6.14	0.78		6.34	1.01	5.90 1.19
Overall Performance	6.03	0.75		5.78	1.01	5.55 1.24
PERSONAL CHARACTERISTICS RATING SCALES	MSGs			RSOs		
	MEAN	S.D.		MEAN	S.D.	COMPANY COMMANDERS
	MEAN	S.D.		MEAN	S.D.	MEAN 5.70 S.D. 1.31
Initiative/Leadership	6.01	0.73		5.65	1.35	5.68 1.24
Motivation/Effort	6.00	0.71		5.69	1.31	5.88 1.24
Cooperativeness	5.90	0.76		5.77	1.22	5.60 1.35
Sociability	5.98	0.76		5.77	1.32	5.75 1.30
Emotional Stability	5.98	0.84		5.88	1.09	6.07 1.14
Maturity/Self-Discipline	6.18	0.79		6.25	0.93	6.20 1.06
Honesty/Integrity/Ethics	6.24	0.68		6.40	0.94	5.87 1.15
Dependability	6.09	0.76		5.96	1.10	5.39 1.32
Attention to Detail	6.11	0.66		5.57	1.13	5.89 1.23
Adaptability	6.10	0.66		5.57	1.11	

Note: Means and Standard Deviations based on seven-point rating scale.

Table 13

Correlations Among Rating Sources for
Ratings of Detachment Commander Job Performance

	<u>RSOs WITH MSGs</u>	<u>COMPANY COMMANDERS with MSGs</u>	<u>RSOs WITH COMPANY COMMANDERS</u>
<u>JOB BEHAVIOR CATEGORY RATING SCALES</u>			
Checking/Monitoring MSGs	.30	.10	.23
Training MSGs	.08	.18	.25
Performing Security Duties	.07	.31	.21
Performing Administrative Duties	.05	.06	.20
Providing Guidance/Advice	.03	.05	.27
Providing Performance Evaluations and Discipline	.19	.04	.25
Establishing and Maintaining Detachment Morale/Rapport	.11	.07	.36
Interacting with the Diplomatic Community and Foreign Nationals	.29	.10	.19
Reacting to Emergencies/Crises	.13	.15	.34
Personal Conduct	.18	.26	.15
Overall Performance	.07	.09	.39
<u>PERSONAL CHARACTERISTICS RATING SCALES</u>			
Initiative/Leadership	.27	.20	.28
Motivation/Effort	.21	.17	.19
Cooperativeness	.24	.00	.20
Sociability	.16	.07	.16
Emotional Stability	.11	.05	.16
Maturity/Self-Discipline	.18	.20	.19
Honesty/Integrity/Ethics	.02	.10	-.06
Dependability	.13	.13	.23
Attention to Detail	.11	.12	.28
Adaptability	.21	.19	.15

Table 14

Factor Loadings of Detachment Commander Job Performance Ratings by RSOs

<u>RATING SCALES</u>	<u>PERFORMANCE RATING FACTORS</u>			
	<u>CORE DUTIES</u>	<u>INTERPERSONAL</u>	<u>SELF-DISCIPLINE</u>	<u>RELATIONSHIP with DETACHMENT</u>
Checking/Monitoring MSGs	.80	.27	.22	.04
Initiative/Leadership	.76	.30	.15	.32
Motivation/Effort	.75	.40	.26	.17
Attention to Detail	.70	.25	.17	.31
Dependability	.69	.06	.45	.31
Reacting to Emergencies/Crises	.67	.30	.31	.28
Train MSGs	.66	.27	.39	.29
Overall Performance	.61	.40	.34	.45
Performing Security Duties	.54	.19	-.01	.42
Performing Administrative Duties	.46	.21	.36	.34
Interacting with the Diplomatic Community and Foreign Nationals	.32	.81	.18	.06
Sociability	.20	.79	.22	.36
Cooperativeness	.35	.72	.22	.25
Adaptability	.33	.71	.25	.25
Personal Conduct	.28	.27	.83	-.04
Maturity/Self-Discipline	.23	.26	.80	.33
Emotional Stability	.15	.56	.60	.26
Honesty/Integrity/Ethics	.34	.14	.56	.44
Provide Guidance/Advice	.32	.26	.21	.76
Establishing and Maintaining Detachment Morale/Rapport	.33	.45	.27	.65
Providing Performance Evaluations and Discipline	.50	.29	.19	.58

Table 15 indicates that there is a high degree of intercorrelation among the factors, and that each of the factors is highly correlated with the total composite. Despite this, there appears to be sufficient differentiation among the factors to serve as criteria for validating the predictors.

Table 15

Intercorrelations of Detachment Commander Job Performance Ratings by RSOs

	<u>CORE DUTIES</u>	<u>INTERPERSONAL</u>	<u>SELF- DISCIPLINE</u>	<u>RELATIONSHIP with DETACHMENT</u>
Interpersonal	.72**			
Self-Discipline	.72**	.69**		
Relationship with Detachment	.80**	.71**	.68**	
Total Composite	.96**	.86**	.84**	.88**

** $p < .01$

Note: Sample size varies from 86 to 88.

Examination of Data Quality

Once the data had been assembled, a preliminary analysis was performed to insure that all of the individuals had provided usable responses. The authors were concerned that some individuals, particularly in the concurrent sample, might not have taken the project seriously and might have responded randomly to test items. Thus, the random response scales available from the ABLE and CAQ were examined to determine the extent to which this problem existed.

The scoring program for the ABLE provides a cutoff score (i.e., a score of 5 or less) for the Random Response scale. All of the cases which showed excessive random responding, as defined by this cutoff, were deleted from the data set. Since a cutoff score is not provided by the publisher for random responding on the CAQ, the authors established their own cutoff score (i.e., a score of 9 or more) after examining the distribution of scores on this scale and the items which make up the scale. Again, individuals who showed evidence of random responding, based on this cutoff, were removed from the data set. In all, four Detachment Commanders and 96 MSGs were excluded from the sample as a result of using these procedures. The high random responding occurred almost exclusively in the concurrent sample.

Combining the Predictive and Concurrent Validation Samples

In order to examine the predictive power of the tests in relation to MSG Duty Performance, two important methodological issues had to be resolved. The principal issue was whether to perform separate analyses for the predictive and concurrent samples or to combine them. If the samples were to be combined, the question was whether to combine the raw data or to somehow pool the correlation matrices.

The authors decided to combine the samples for two reasons. One was that it would be extremely difficult to analyze the samples separately. This was because certain individuals were part of both samples since they took some of the predictor tests at school and some in the field. The second and more important reason was that the validity coefficients from a pooled sample would more accurately reflect the population value than coefficients from the two smaller samples.

In considering how to combine the samples, it was determined that the better approach would be to pool the correlation matrices. The primary advantage of this approach was that it allowed the authors to correct the correlation coefficients for criterion unreliability and range restriction on the predictor, thereby providing more accurate estimates of the population correlation coefficients.

In correcting for criterion unreliability, it was only possible to obtain empirical estimates of interrater reliability for one set of job performance ratings -- the MSG peer ratings. For the other rater-ratee combinations, there was generally only one rater per ratee. For these sets of ratings, a value of .60 was used as the estimate for the reliability coefficient. This estimate has been frequently employed in validity generalization research. Also, there is empirical evidence which indicates that this may actually be an overestimate (King, Hunter, & Schmidt, 1980). If this is the case, then the corrected validity coefficients could actually underestimate the population values (Schmidt, Hunter, Pearlman, & Hirsh, 1985, p. 767).

Correction for range restriction on the predictor employed standard deviations for the unrestricted sample which were derived from scores of all individuals who were given the test at the MSG school. Thus, the unrestricted sample contained those who failed the Screening Board evaluation as well as those who passed, while the (restricted) predictive and concurrent samples consisted only of individuals who passed.

Once the correction formulas had been applied to a correlation from the predictive sample and the corresponding correlation from the concurrent sample, a weighted average was obtained, based on corresponding sample sizes.

Several factors combined to considerably reduce the size of this pooled sample. Since only individuals with job performance criteria are represented in the combined sample, any Marine who was not evaluated at his post during the 1988 field data collection project was excluded. This includes most individuals from classes 4-88 through 1-89, who were not yet in the field. In addition, Marines who completed the same tests in the school and in the field had their scale scores dropped from the concurrent sample. This was done because scale scores from the predictive sample demonstrated more integrity in general (less random responding). Marines with unacceptably high scores on either of two random response scales were also dropped.

The resulting combined sample consisted of predictor and criterion data for 812 MSGs and 117 Detachment Commanders. These numbers will vary, however, depending upon the combination of ratee and rater. For example, peers completed job performance evaluations for 812 MSGs, while Detachment Commanders evaluated only 600 MSGs.

RESULTS

The results of the analyses are presented below in two parts. The first concerns the information that is available on Marines at the time they apply for the program and that could be used in screening for the MSG school. The second part addresses the tests that could be used to assist the Selection Board in determining who will pass the school and be allowed on MSG duty.

Screening for MSG School

Earlier in this report the eligibility criteria for entry into MSG duty were presented. These criteria, plus other personnel variables available on automated personnel files and/or recorded on the individual training record (ITR) for Marines, were correlated with the three types of school criteria (pass/fail status, final score, and peer ratings).

Screening MSGs

Table 16 contains the results of analyses concerning personnel variables for MSGs. Only one variable, PFT score⁷, showed a statistically significant relationship to each of the criteria. GT score also appears to be an important predictor, since it is significantly related to both pass/fail status and final score. The concept of financial responsibility was captured in three variables (financial problems, total monthly payments on debt, and total unpaid balance). While no single financial variable was highly related to all criteria, as a group they evidenced significant relationships. None of the other personnel measures showed consistent correlations with the criteria.

Given the predictive relationships shown by GT, PFT, and the various measures of financial responsibility, the next step was to establish cutoff (i.e., minimum acceptable) scores for these variables. The sample of MSGs for whom data were available had experienced a 27.3 percent attrition rate in school. A cutoff

⁷This PFT measure is the first score obtained after reporting to the MSG school. This score would not, of course, be available before a student's admission into school. However, it is being used as a surrogate for the last PFT score obtained before arriving at MSG school. Students are asked to provide their last PFT score on the ITR, but since many of them failed to respond to this item or entered the date of their last PFT, rather than a score, this item could not be used. Thus, it was necessary to use a substitute measure.

Table 16

Correlations of Background Information with MSG School Criteria for MSGs

AUTOMATED PERSONNEL FILE PREDICTORS	PASS/ FAIL	FINAL SCORE	PEER RATINGS					RATINGS TOTAL
			PROFESSIONALISM	MILITARY BEARING	DRINKING LIBERTY	OVERALL MOTIVATION		
Age at Entry	.00	.08*	.11**	.06	.03	.06	.10*	
H.S. Diploma	-.01	-.01	.03	.03	.04	.01	.03	
AFQT Group Score	.05	.28**	.04	-.05	-.02	.02	.01	
Traffic Waiver	.06	-.05	.08*	.01	.04	.07*	.07	
Misdemeanor Waiver	.02	.05	.02	.00	-.01	.06	.02	
Drug Waiver	-.02	.04	-.11**	.02	-.11**	-.08*	-.09*	
<u>INDIVIDUAL TRAINING RECORD DATA</u>								
Age	-.05	.05	.20**	-.02	.05	.11**	.13**	
GT	.08*	.32**	.06	-.05	.01	.04	.03	
PFT Score	.17**	.28**	.12**	.64**	.08*	.28**	.27**	
Civil Offences	.02	-.17**	.11**	.05	.10*	.12**	.13**	
Military Offences	.05	-.01	.00	.03	.09*	.02	.03	
Family Problems	.03	.02	.04	.02	-.01	.08*	.03	
Medical Problems	.07*	-.07	.04	.00	.03	.03	.02	
Financial Problems	.05*	.01	.10**	.06	.06	.09*	.06*	
Drug/Alcohol Problems	.02	-.01	.01	.05	-.01	.03	-.02	
Total Pay Deductions	-.03	-.02	.12**	-.01	.04	.10**	.09*	
Total Monthly Payments	-.04	-.10*	.05*	.03	.08*	.03	.06	
Total Debt	-.06*	-.05	.04	.01	.09*	.02	.06*	

* $p < .05$ ** $p < .01$

Note: Sample size varies from 734 to 1139.

score was desired that would reduce attrition, but not significantly reduce the pool of Marines available for MSG school. It was determined, by inspecting the distributions of scores on each of the variables in relation to pass/fail status, that the cutoff should be set where an applicant's probability of passing the Screening Board evaluation is approximately 50 percent. This point in the distributions: (1) evidenced the greatest discrimination between those who passed and failed; (2) is a realistic expectation of success; and (3) does not negatively impact the available pool of Marine applicants. The expectancy charts in Figures 2 - 4 present the distributions and cutoff scores for GT, PFT, and total debt.⁸

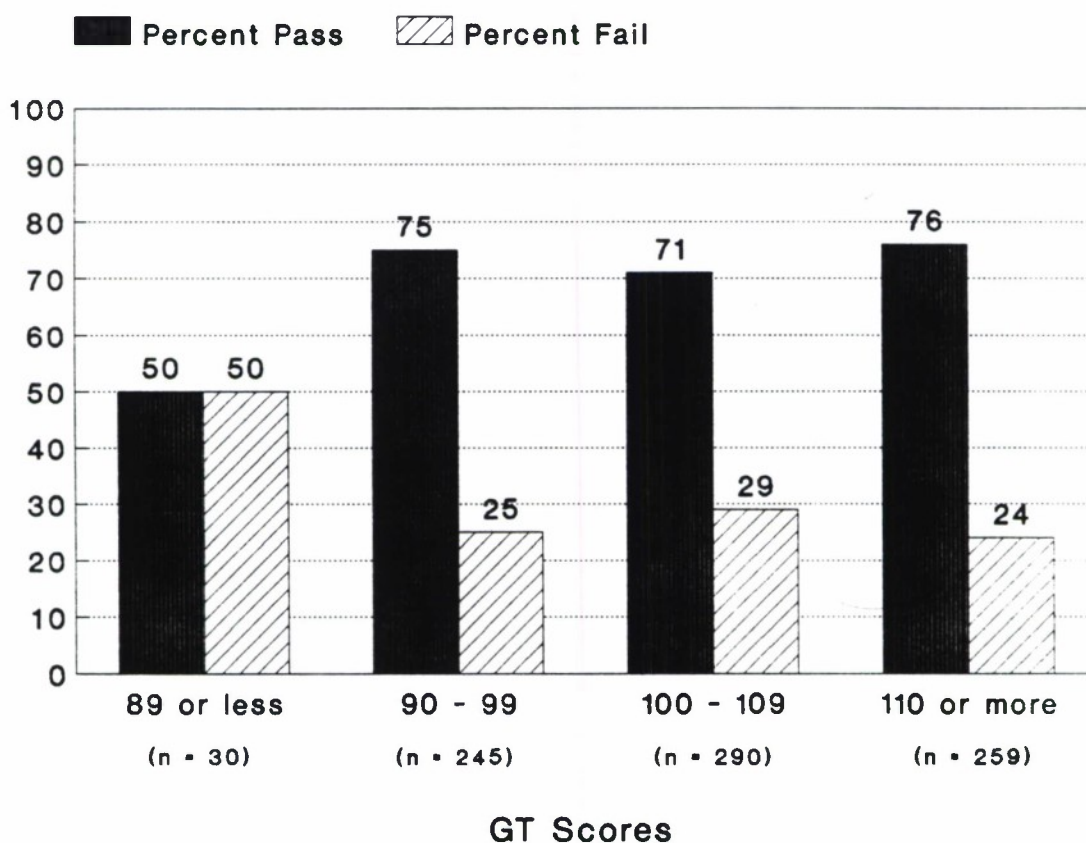


Figure 2. Distribution of GT Scores with Pass/Fail for MSGs

⁸Total debt was the only measure of financial responsibility that showed a significant correlation to pass/fail status.

Figure 2 shows that 30 of the 824 Marines (3.6 percent) had been allowed into the school with a GT score below 90 (in spite of the eligibility requirement of 90 or above on GT). For that group, the failure rate in school was 50 percent. For a GT score above 90 the failure rate is 25 percent and does not vary greatly across the range of scores above the cutoff. This finding clearly demonstrates the utility of the current eligibility requirement.

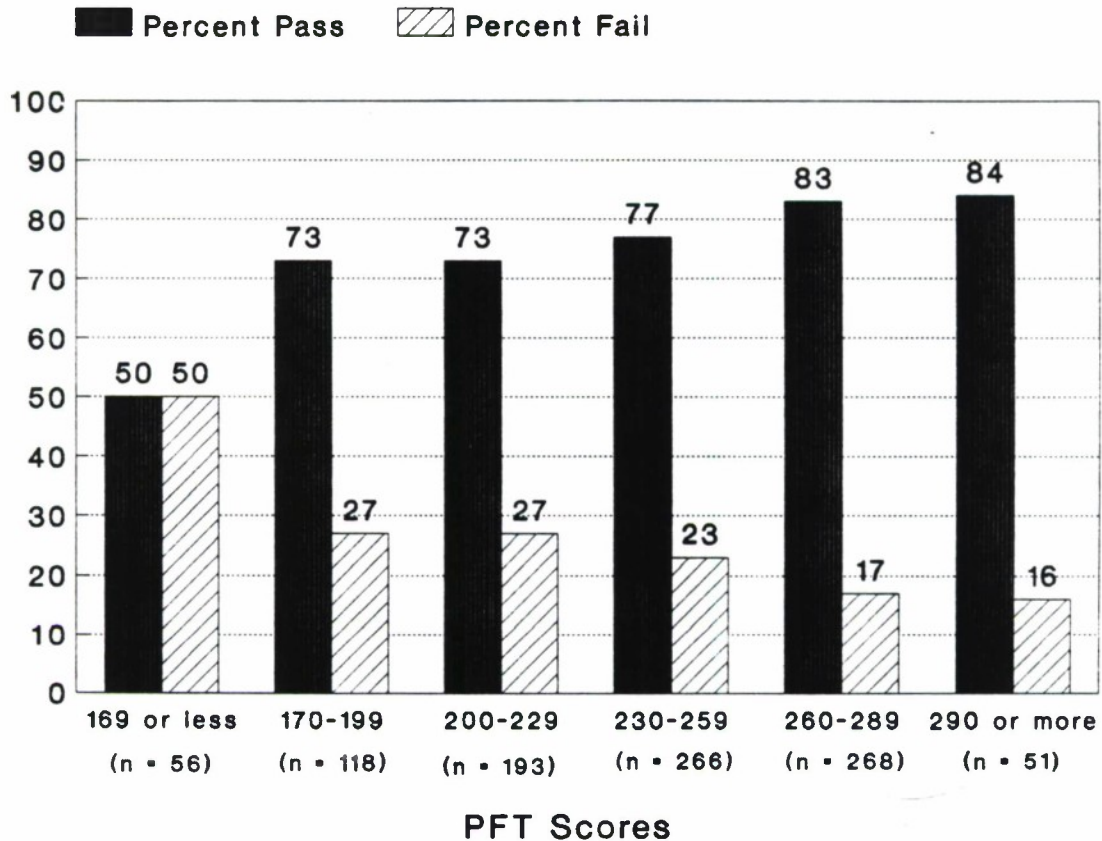


Figure 3. Distribution of PFT Scores with MSG School Pass/Fail for MSGs

Figure 3 shows that Marines with a PFT score below 170 have a 50 percent failure rate in MSG school. Roughly 6 percent of the Marines in the sample fell into this lowest PFT category. Above a PFT score of 170, the failure rates range from 27 percent to 16 percent.

As Figure 4 illustrates, students with a total debt greater than \$11,000 have a considerably higher failure rate in MSG school (51 percent) than those with obligations less than \$11,000. Thirty-nine students, or 3.6 percent of the sample,

had a total debt greater than \$11,000. Again, those who made the cutoff had considerably lower failure rates.

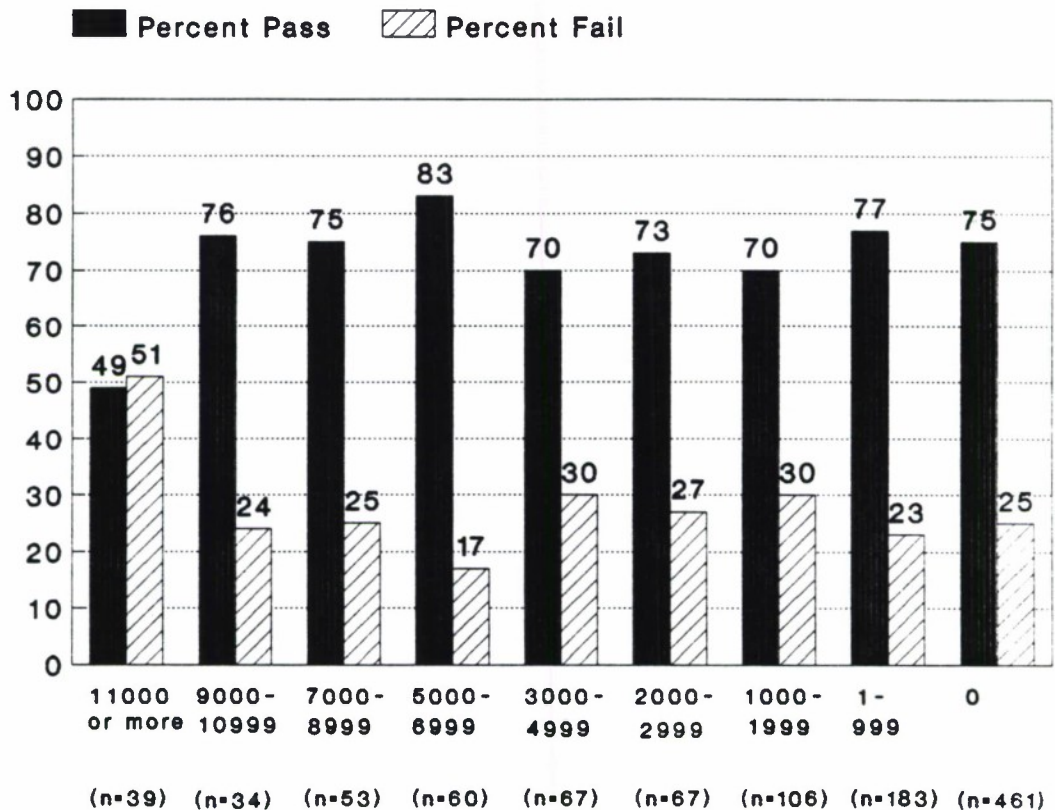


Figure 4. Distribution of Total Debt With MSG School Pass/Fail for MSGs

Screening Detachment Commanders

Table 17 shows correlations of Detachment Commander student background information with MSG school criteria. Age at entry into the Marine Corps exhibits significant negative relationships with pass/fail status and peer ratings. The older the Marine at entry (the age range was 17-25 years of age), the poorer his chance of passing the school and being rated highly by his peers. Self-reported civil offenses correlated with pass/fail and with some of the other criteria. Self-reported medical problems also related significantly to pass/fail, but not to other criteria. PFT score showed a pattern of positive correlations with the criteria and those with final score and military bearing reached the .01 level of statistical significance.

Table 17

Correlations of Background Information with MSG School Criteria for Detachment Commanders

AUTOMATED PERSONNEL FILE PREDICTORS	PASS/ FAIL	FINAL SCORE	PEER RATINGS				
			PROFESSIONALISM	MILITARY BEARING	DRINKING LIBERTY	OVERALL MOTIVATION	RATINGS TOTAL
Age At Entry	-.34**	-.12	-.29*	-.42**	-.33**	-.38**	-.40**
H.S. Diploma	-.07	.26	.07	.09	-.12	.09	.06
AFQT Group Score	-.10	.08	-.04	-.07	.21	.04	.02
Traffic Waiver	.01	.29*	.05	.15	.06	.06	.09
Misdemeanor Waiver	-.04	.24	-.12	.05	-.03	-.08	-.08
Drug Waiver ^a							
INDIVIDUAL TRAINING RECORD DATA							
Age	.11	-.09	.20	-.24*	-.01	.16	.08
GT	.00	.24	.24*	.06	.18	.28*	.24*
PFT Score	.15	.40**	.10	.66**	.20	.30*	.30*
Civil Offences	.20*	-.01	.24*	.14	.16	.12	.20
Military Offences	.10	-.10	.16	.17	.16	.12	.17
Family Problems ^a	.06						
Medical Problems	.31**	.00	.12	-.12	-.03	.11	.05
Financial Problems ^a	.15						
Drug/Alcohol Problems	.09	.00	.00	-.05	-.03	.04	-.01
Total Pay Deductions	.10	-.11	.06	.03	-.03	.07	.05
Total Monthly Payments	.07	.07	.06	-.09	.00	.10	.03
Total Debt	.03	-.09	.23	-.05	.08	.21	.17

* $p < .05$ ** $p < .01$

Note: Sample size varies from 69 to 121. This variability affects tests for significance of correlation coefficients.
^aFor these variables there was no variance in response.

The distributions of age at entry and PFT score are shown in Figures 5 and 6. Figure 5 shows that SNCOs who were 20 years or older at time of entry into the Marine Corps have only a 27 percent chance of passing MSG school. The school performance of the 15 students (nearly 18 percent of the sample) who fell into this age category is markedly poorer than that of younger accessions. Unlike other distributions with pass/fail seen so far, there is no discreet point at which SNCOs have a 50 percent probability of failure. This is partly due to the limited range of values that the age variable offers. If age of entry into the Marine Corps is 17, 18, or 19, a Marine's chances of failure are 21, 35, and 20 percent, respectively. For those who were older than 19 at time of entry, a sudden and complete reversal in probabilities is seen.

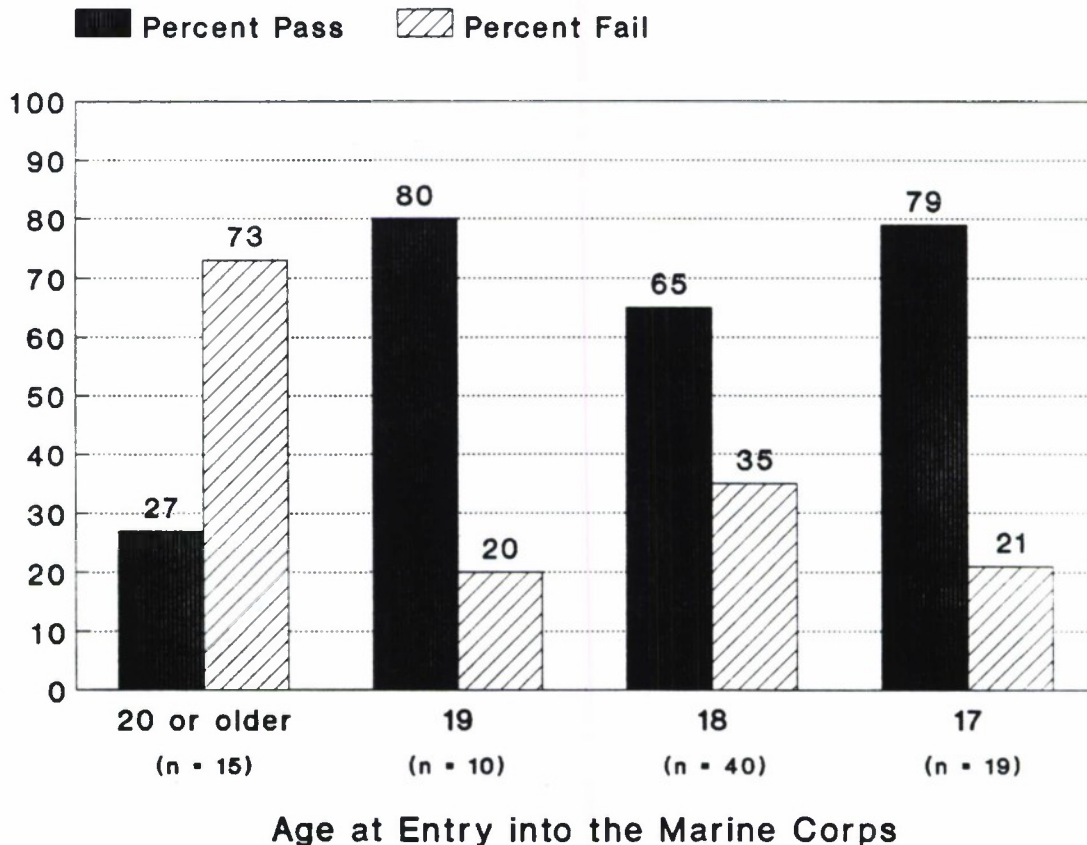


Figure 5. Distribution of Age at Entry With MSG School Pass/Fail for Detachment Commanders

Figure 6 demonstrates that SNCOs who score 165 or less on PFT have only a 50 percent chance of passing MSG school. Nearly 14 percent of the candidates fell into this lowest PFT grouping. Failure rates for those who scored above 165 in physical fitness do not differ dramatically, ranging from 23 to 36 percent.

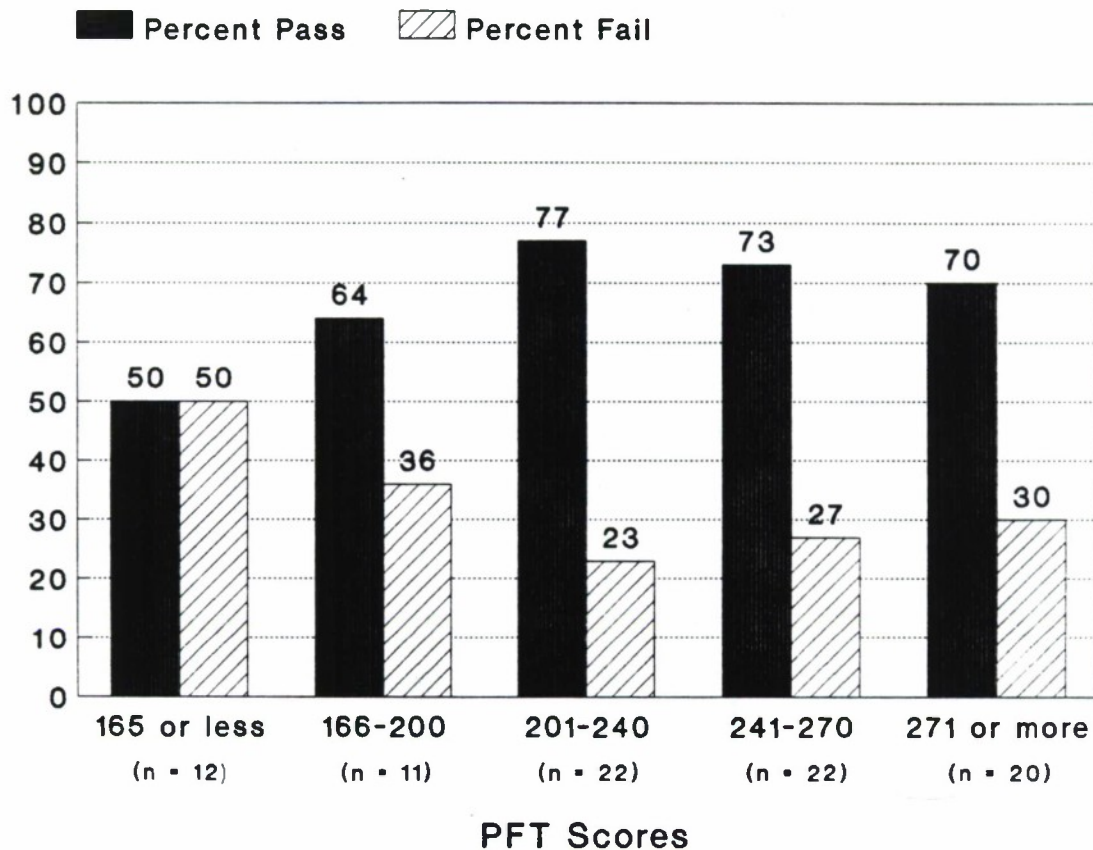


Figure 6. Distribution of PFT Scores with Pass/Fail for Detachment Commanders

Selecting Students for MSG Duty

Each of the instruments administered to Marines at the MSG school or on MSG duty were evaluated against the school and rated performance criteria when there were large enough samples of predictor and/or criterion data. The results of these analyses will be presented first for MSGs. The data for Detachment Commanders is restricted by sample size for some of the variables.

Selecting MSGs

There are two major considerations in evaluating instruments for possible use in selecting MSGs. The first is whether the instrument is predictive of the Screening Board decision to pass or fail students at the MSG school. In a sense, by using this criterion we are attempting to capture the policies of previous boards for guidance to future boards. A second consideration concerns the predictiveness of the tests against indices of on-the-job performance. The goal is to select those instruments that predict both criteria and to develop rules for use of the instruments.

Predicting MSG School Criteria

Each of the predictor tests was examined individually for its relationship to the three school criteria and will be discussed in turn. The following discussion focuses on the magnitude and statistical significance of the validity coefficients and not on the sign of the correlation, since the sign only reflects the manner in which the items are coded and combined into scales. After the discussion of the validity coefficients, a series of models will be presented which incorporate several predictors.

LEQ. Table 18 displays the correlations of the LEQ with the three criteria. Similar results were presented, for a combined sample of MSGs and Detachment Commanders, in a separate report (Parker et al., 1989) which recommended that the LEQ be operationally used at the MSG school. Since the publication of that report, more data have become available, resulting in increased sample size. In addition, the sample sizes for the correlation coefficients reported in Parker et al. (1989) were restricted due to concern over possible criterion contamination with respect to pass/fail status (i.e., data for several classes were not used in those analyses because some of the scale scores were considered in Screening Board evaluation). However, examination of the full sample of data did not indicate that criterion contamination was a serious problem. Instead, estimates of the correlation coefficients tend to be more conservative than those previously reported. Thus, the results reported in Table 18 are derived from all scales for all MSG classes who completed the LEQ.

Most of the content homogeneous scales exhibit a moderate relationship to pass/fail status, including: Traditional Values ($r = .17$), High School Academics ($r = .15$), High School Sociability ($r = .16$), Home/Family Life ($r = .15$), Conscientiousness ($r = .16$), Cooperativeness ($r = .17$), and Ethical Conservatism ($r = .21$). The nonhomogeneous scales that showed significant correlations with pass/fail included Total Adjustment ($r = .23$), Sherman Critical ($r = .21$), and the Parker-Fitz ($r = .20$) scales. Physical Fitness/Smoking had the highest correlation with final score ($r = .21$). The S-Scale demonstrates the strongest relationships,

Table 18

Correlations of LEQ Scales with MSG School Criteria for MSGs

LEQ SCALES	PASS/ FAIL	FINAL SCORE	PEER RATINGS					RATINGS TOTAL
			PROFESSIONALISM	MILITARY BEARING	DRINKING LIBERTY	OVERALL MOTIVATION		
I. CONTENT HOMOGENEOUS								
Traditional Values	.17**	.03	.16	.13	.12	.20*	.16	
H.S. Academics	.15**	.02	.12*	.20**	.10	.14**	.14**	
H.S. Adjustment	.11**	-.07	.12*	.14**	.14**	.12*	.13**	
H.S. Sociability	.16**	.10	.00	.11	-.06	.09	.03	
Home/Family Life	.15**	-.12	.31**	.15	.10	.35**	.21*	
Legal/Alcohol Trouble	.06	-.07	.06	.05	.09	.05	.07	
Conscientiousness	.16**	.18**	.14*	.18**	.08	.19**	.14*	
Cooperativeness	.17**	.18**	.11	.15*	.02	.14*	.13*	
Physical Fit./Smoking	.05	.21**	.14	.40**	.20	.25**	.27**	
Ethical Conservatism	.21**	-.03	.05	.12	.00	.19	.07	
Social Desirability	.07	-.06	.08	.13	.04	.09	.10	
II. NONHOMOGENEOUS								
Parker-Fitz	.20**	-.05	.21**	.16**	.14**	.23**	.21**	
Sherman Critical	.21**	-.12	.22**	.18**	.16**	.22**	.20**	
Random Response	-.04	-.04	.03	.07	.06	.07	.07	
S-Scale	N/A	.02	.34**	.22*	.22*	.41**	.34**	
Total Adjustment	.23**	.16**	.16*	.25**	.11	.22**	.19**	
Sample size	339-702	185-455	99-431					

* $p < .05$ ** $p < .01$

Note: This variability affects tests for significance of correlation coefficients.

overall, with the peer rating criteria. Also, the Parker-Fitz and Sherman Critical scales are moderately related to each of the peer rating criteria.

SAB. Most scales of the SAB evidence low to moderate correlations with the MSG school criteria (see Table 19). The scales Dominance, Well Being, Organization, and Methodical show a pattern of significant correlations with most of the criteria. Of all the scales, Dominance shows the strongest relationship ($r = .22$) with the peer rating Overall Motivation and is strongly correlated ($r = .21$) with Military Bearing. Organization has the highest correlation ($r = .17$) with the peer Ratings Total and is also moderately correlated with pass/fail ($r = .15$) and Military Bearing ($r = .20$). Methodical is the SAB scale most highly correlated ($r = .18$) with final score. Religious/Abstention and Delinquency have the highest correlations with the Drinking/Liberty peer rating ($r = .17$ and $-.19$, respectively).

ABLE. Most of the ABLE substantive scales are significantly correlated with the pass/fail and the peer rating criteria (Table 20), while few significant correlations with final score are evident. The scales with the strongest relationship to pass/fail are Emotional Stability ($r = .22$), Traditional Values ($r = .20$), and Energy Level ($r = .22$). Also, Energy Level registers the highest correlations with final score ($r = .15$) and the Peer Ratings Total ($r = .22$). The single strongest relationship is the ABLE scale Physical Condition with the peer rating Military Bearing ($r = .31$). The latter rating has a strong component of physical fitness and physical appearance items.

16PF. Scales of the 16PF exhibit a pattern of low to moderate correlations with the MSG school criteria (Table 21). Conscientious is the best predictor of pass/fail ($r = .16$) and the peer rating total ($r = .11$). The scale Intelligent shows the strongest relationship to final score ($r = .15$). It is interesting to note that the general intelligence measures GT and AFQT discussed earlier were also related to final score. Few scales were significantly correlated with the Drinking/Liberty peer rating.

16PF composites. Since the 16PF composites are weighted combinations of individual 16PF scale scores, it is not surprising that many of the composite scale correlations with MSG criteria found in Table 22 are higher than those registered by single 16PF scales (Table 21). For the occupational scale series, those who score high on the Alcoholic or Criminal composites are most likely to fail the Screening Board evaluation ($r = -.12$ and $-.13$, respectively). However, individuals who have a low tendency for Accidents or resemble the profile of a Psychological Technician are likely to pass ($r = .17$ and $.19$, respectively). Similar relationships are evident between these four scales and most of the other criteria.

Two of the three scales developed by IPAT for screening nuclear powerplant workers (Krug, 1981) perform well against the MSG school criteria. The Decision

Table 19
Correlations of SAB Scales with MSG School Criteria for MSGs

SAB SCALES	PASS/ FAIL	FINAL SCORE	PEER RATINGS					RATINGS TOTAL
			PROFESSIONALISM	MILITARY BEARING	DRINKING LIBERTY	OVERALL MOTIVATION		
C1 Dominance	.12**	.10**	.10**	.21**	.03	.22**	.15**	
C2 Well Being	.14**	.10**	.12**	.14**	.08*	.18**	.15**	
C3 Good Natured	.04	.03	.04	.04	.02	.05	.04	
C4 Exhibitionism	.00	.13**	-.07	.07	-.12**	.00	-.04	
C5 Organization	.15**	.03	.14**	.20**	.10**	.19**	.17**	
C6 Age	.01	.06	.17**	.01	.03	.17**	.13**	
C7 Extroversion	.06	.06	.00	.14**	-.10*	.11**	.03	
C8 Methodical	.10**	.18**	.08*	.05	.09*	.09*	.09*	
C9 Religious/Abstention	.04	-.06	.08*	.16**	.17**	.09*	.13**	
C10 Even Tempered	.09**	.05	.04	.06	.03	.08*	.06	
C11 Hard Working	.11**	.09*	.04	.12**	.05	.09*	.08*	
C12 Cautious	.10**	-.01	.04	.10**	.07	.08*	.07	
C13 Marriage	.00	-.05	.04	.03	-.03	.01	.02	
C14 Stable	.13**	.12**	.07	.06	.06	.09*	.08*	
C15 Spontaneity	-.01	-.10*	-.09*	-.01	-.14**	-.05	-.10**	
C16 Delinquency	-.05	.01	-.05	-.09*	-.19**	-.06	-.10**	

* $p < .05$

** $p < .01$

Note: Sample size varies from 683 to 1019. This variability affects tests for significance of correlation coefficients.

Table 20

Correlations of ABLE Scales with MSG School Criteria for MSGs

SCALE SCALES	PEER RATINGS						
	PASS/ FAIL	FINAL SCORE	PROFESSIONALISM	MILITARY BEARING	DRINKING LIBERTY	OVERALL MOTIVATION	RATINGS TOTAL
SUBSTANTIVE SCALES							
Emotional Stability	.22**	.08	.14**	.14**	.11*	.20**	.17**
Self-Esteem	.18**	.08	.12*	.20**	.11*	.18**	.15**
Cooperativeness	.17**	.08	.18**	.12*	.09	.18**	.17**
Conscientiousness	.17**	.05	.13**	.16**	.16**	.16**	.16**
Nondelinquency	.15**	-.10*	.17**	.15**	.15**	.17**	.17**
Traditional Values	.20**	-.02	.10*	.10*	.03	.13**	.09
Work Orientation	.16**	.07	.18**	.24**	.12*	.24**	.20**
Internal Control	.19**	.04	.09	.10*	.06	.13**	.08
Energy Level	.22**	.15**	.18**	.28**	.13**	.28**	.22**
Dominance	.19**	.04	.18**	.20**	.09	.25**	.20**
Physical Condition	.14**	.10*	.10*	.31**	.01	.17**	.15**
VALIDITY SCALES							
Social Desirability	.04	-.06	.06	.14**	.06	.11*	.10*
Self-Knowledge	-.01	.03	.04	.11*	-.04	.04	.04
Random Response	.05	.05	.00	.00	-.02	.00	-.02
Poor Impression	-.13**	-.06	-.08	-.08	-.03	-.11*	-.08

* $p < .05$ ** $p < .01$

Note: Sample size varies from 421 to 690. This variability affects tests for significance of correlation coefficients.

Table 21

Correlations of 16PF Scales with MSG School Criteria for MSGs

16PF SCALES		PEER RATINGS						
		PASS/ FAIL	FINAL SCORE	PROFESSIONALISM	MILITARY BEARING	DRINKING LIBERTY	OVERALL MOTIVATION	RATINGS TOTAL
PRIMARY FACTORS								
A Warm	.02	-.02	-.05	.08*	.00	.01	.01	
B Intelligent	.03	.15**	.08*	-.01	.05	.05	.06	
C Emotionally Stable	.11**	.05	.04	.04	.06	.10**	.07	
E Assertive	-.01	.12**	-.05	.00	-.05	-.01	-.03	
F Enthusiastic	.09**	.07	.01	.07	-.10**	.05	-.02	
G Conscientious	.16**	.06	.06	.13**	.07*	.13**	.11**	
H Bold	.12**	.06	.03	.15**	-.01	.15**	.08*	
I Tender-minded	-.01	-.13**	-.05	-.02	.00	-.06	-.04	
L Suspicious	-.04	-.06	-.01	-.02	-.03	-.03	-.01	
M Imaginative	.03	.13**	.00	.01	.03	.02	.02	
N Shrewd	.03	-.13**	-.04	.01	.00	-.03	-.03	
O Apprehensive	-.07*	-.10**	-.04	-.04	-.01	-.07	-.04	
Q1 Experimenting	-.11**	.04	-.08*	-.03	-.09*	-.09**	-.09*	
Q2 Self-Sufficient	-.04	.02	.04	-.13**	.00	-.06	-.01	
Q3 Controlled	.13**	.04	.03	.09*	.06	.10**	.08*	
Q4 Tense	-.12**	-.05	-.05	-.08*	-.09*	-.11**	-.08*	
SECOND-ORDER FACTORS								
QI Extraversion	.09**	.05	-.02	.16**	-.05	.09**	.03	
QII Anxiety	-.11**	-.06	-.06	-.08*	-.06	-.12**	-.08*	
QIII Tough Poise	.02	.03	.09*	-.02	-.04	.06	.02	
QIV Independence	-.02	.13**	-.03	.01	-.07	.01	-.02	

* $p < .05$ ** $p < .01$

Note: Sample size varies from 747 to 1016. This variability affects tests for significance of correlation coefficients.

Table 22

Correlations of 16PF Composites with MSG School Criteria for MSGs

16PF COMPOSITES	PASS/ FAIL	FINAL SCORE	PEER RATINGS				OVERALL MOTIVATION	RATINGS TOTAL
			PROFESSIONALISM	MILITARY BEARING	DRINKING LIBERTY			
OCCUPATIONAL SCALES								
Police 1	-.01	.03	.05	-.08*	.07	-.01	.02	
Freedom from Accidents	.17**	.03	.08*	.11**	.09*	.15**	.12**	
Psychological Technician	.19**	.02	.07*	.14**	.09*	.18**	.13**	
Counselor	.01	.18**	.00	.09*	-.03	.08*	.03	
Football Player	.03	.05	-.03	.02	-.07*	.01	-.02	
Police 2	-.01	.11**	-.02	.01	.03	.01	.01	
Janitor	-.02	-.04	-.02	.00	.01	.01	.02	
Alcoholic	-.12**	-.12**	-.06	-.10**	-.03	-.13**	-.07*	
Criminal	-.13**	-.08*	-.08*	-.09*	-.05	-.14**	-.09*	
NUCLEAR REGULATORY AGENCY SCALES								
Decision	.15**	.07	.04	.07	-.01	.08*	.04	
Decision Rank	.19**	.11**	.11**	.13**	.03	.20**	.13**	
Decision Model Index	.23**	.18**	.20**	.17**	.10*	.26**	.21**	
MSG STUDY SCALES								
MSG Field Performance	.19**	.10**	.08*	.17**	.06	.19**	.13**	
MSG School Performance	.11**	.10**	.09*	.09**	.07	.13**	.11**	
SELECTED SCALES								
Control	.19**	.05	.12**	.15**	.08*	.17**	.14**	
Depression	-.21**	-.18**	-.16**	-.14**	-.10*	-.23**	-.18**	
Psychoticism	-.17**	-.10*	-.16**	-.11**	-.09*	-.21**	-.17**	
Neuroticism	-.01	-.04	.04*	-.01	.05	.00	.03	
Leadership	.21**	.13**	.12**	.15**	.03*	.19**	.14**	
Accident Proneness	-.16**	-.02	-.15**	-.09*	-.10**	-.16**	-.14**	
Integration	-.02	-.08*	.03	.05	.08*	.03	.05	
Interest	.02	-.09*	-.03	-.03	-.05	-.02	-.04	
Conflict	.00	-.04	.00	.00	.01	-.01	.00	

* $p < .05$ ** $p < .01$

Note: Sample size varies from 747 to 1016. This variability affects tests for significance of correlation coefficients.

Rank scale maintains moderate to strong relationships with the criteria (Drinking/Liberty excepted) at the .01 level of significance. The Decision Model Index scale, however, shows a strong relationship with all the criteria. It performs better than, or at least as well as, any other 16PF composite scale. Its correlation with pass/fail ($r = .23$) is also the highest of any of the composites.

Two composite scales, MSG Field Performance and MSG School Performance, developed in a previous study by Sherman, Bergin, and Schmidt (1978), predict all the criteria (Drinking/Liberty behavior excepted) at significant levels. The Field Performance scale, interestingly, is the better predictor of the school criteria. Neither of these scales, however, is the best overall predictor of performance in MSG school. Among the selected composite scales, Control, Depression, Psychoticism, Leadership, and Accident Proneness demonstrate moderate to strong correlations with most of the criteria.

MAT. The MAT scales, in both their unintegrated and integrated forms, show generally weak correlations with the criteria (Table 23), although some are significant at the .01 level because of the large sample size. No single MAT scale exhibits significant correlations with all criteria. The integrated Affection scale shows the highest correlation ($r = .07$) with pass/fail and is also significantly correlated with several of the peer rating factors. The unintegrated Self-Indulgent scale shows the strongest relationship to final score ($r = -.11$) and is also significantly, though weakly, related to pass/fail ($r = -.06$). No clear pattern of relationships between integrated and unintegrated forms of MAT scales is evident.

CAQ. As Table 24 shows, 10 of the 12 clinical scales from the CAQ show moderate correlations with pass/fail, the highest correlations being registered by the scales Hypochondriasis and Schizophrenia ($r = -.17$ for both). Schizophrenia also correlates highest with four of the remaining six criteria: Professionalism ($r = -.17$), Military Bearing ($r = -.15$), Overall Motivation ($r = -.22$), and Ratings Total ($r = -.19$). While a tendency towards schizophrenia seems to contribute to an MSG student's poor school performance to an impressive degree, it should be noted that several other scales, including Hypochondriasis, Suicidal Depression, Low Energy Depression, and Psychological Inadequacy also perform well across most of the criteria. It is also noteworthy that Suicidal Depression is the best predictor of Drinking/Liberty ratings ($r = -.13$). The link between suicidal depression (and suicide) and heavy drinking is well established in psychological literature.

APOI. Only a few of the correlations in Table 25 between the seven APOI scales and the MSG school criteria are statistically significant. The scales Ego Development, Resiliency/Energy, Adventuresomeness/Modernity, and Support demonstrate moderate relationships with pass/fail, but none of these scales is able to predict more than one other criterion.

Table 23

Correlations of MAT Scales with MSG School Criteria for MSGs

MAT SCALES	PEER RATINGS						
	PASS/ FAIL	FINAL SCORE	PROFESSIONALISM	MILITARY BEARING	DRINKING LIBERTY	OVERALL MOTIVATION	RATINGS TOTAL
UNINTEGRATED SCALES							
UCa Career	.01	-.04	.02	.05	.02	.04	.04
UHo Dependency	.03	.05	.09**	.03	.10**	.09**	.10**
UFr Security	-.01	.07	-.06	-.02	-.09*	-.08*	-.10**
UNa Self-Indulgent	-.06*	-.11**	-.01	-.08*	-.04	-.05	-.04
USE Responsibility	.03	-.04	.04	.08*	.09*	.07	.07*
USS Self-Concept	.04	.03	.03	.05	-.01	.02	.01
UMa Heterosexuality	-.02	.01	.00	-.05	-.02	.01	.01
UPg Hostility	-.02	.07*	-.03	-.08*	-.06	-.05	-.06
UAS Self-Assertion	.00	-.09*	-.06	-.01	.01	-.05	-.03
USW Affection	-.01	-.02	-.05	-.07*	-.05	-.05	-.07
INTEGRATED SCALES							
ICa Career	.06	-.04	.08*	.08*	.05	.08*	.09*
IHo Dependency	.00	-.04	.04	.05	.06	.03	.04
IFr Security	-.01	-.01	-.01	-.03	-.02	-.05	-.03
INa Self-Indulgent	.00	.01	.03	.02	-.01	.04	.02
ISE Responsibility	.05	-.03	.03	.10**	.01	.05	.04
ISS Self-Concept	-.05	.01	-.07	-.09*	-.07	-.06	-.08*
IMa Heterosexuality	-.05	-.05	.00	-.06	-.07*	-.03	-.04
IPg Hostility	-.02	-.04	-.06	-.03	.01	-.03	-.04
IAS Self-Assertion	-.03	-.02	-.05	-.03	-.06	-.06	-.06
ISW Affection	.07*	-.02	.12**	.04	.08*	.10**	.10**

* $p < .05$ ** $p < .01$

Note: Sample size varies from 747 to 1016. This variability affects tests for significance of correlation coefficients.

Table 24
Correlations of CAQ Scales with MSG School Criteria for MSGs

<u>CAQ SCALES</u>	<u>PASS/ FAIL</u>	<u>FINAL SCORE</u>	<u>PROFESSIONALISM</u>	<u>MILITARY BEARING</u>	<u>DRINKING LIBERTY</u>	<u>OVERALL MOTIVATION</u>	<u>RATINGS TOTAL</u>
Hypochondriasis	-.17**	-.13**	-.14**	-.12**	-.10*	-.17**	-.15**
Suicidal Depression	-.16**	-.10**	-.15**	-.11**	-.13**	-.19**	-.17**
Agitation	.01	.12**	-.04	-.04	-.05	-.04	-.05
Anxious Depression	-.16**	-.11**	-.08*	-.07	-.06	-.14**	-.09*
Low Energy Depression	-.16**	-.15**	-.12**	-.10*	-.06	-.17**	-.13**
Guilt/Resentment	-.07*	.00	-.12**	-.12**	-.05	-.15**	-.12**
Bored Depression	-.11**	-.08*	-.04	-.11**	.02	-.13**	-.07
Paranoia	-.14**	-.12**	-.15**	-.04	-.08*	-.16**	-.13**
Psychopathic Deviation	.10**	.13**	.03	.02	-.01	.06	.04
Schizophrenia	-.17**	-.08*	-.17**	-.15**	-.10**	-.22**	-.19**
Psychasthenia	-.06	-.09*	-.09*	-.07*	-.06	-.10*	-.09*
Psychological Inadequacy	-.16**	-.14**	-.13**	-.08*	-.07	-.17**	-.14**
Faking Good	.14**	.10*	.06	-.13**	.07	.14**	.11**

* $p < .05$

** $p < .01$

Note: Sample size varies from 747 to 1016. This variability affects tests for significance of correlation coefficients.

Table 25

Correlations of APOI Scales with MSG School Criteria for MSGs

<u>APOI SCALES</u>	<u>PASS/ FAIL</u>	<u>FINAL SCORE</u>	<u>PEER RATINGS</u>					<u>RATINGS TOTAL</u>
			<u>PROFESSIONALISM</u>	<u>MILITARY BEARING</u>	<u>DRINKING LIBERTY</u>	<u>OVERALL MOTIVATION</u>		
Ego Development	-.13**	-.06	-.08	.02	-.13*	-.07	-.08	
Sociability	.04	.00	.06	.08	.08	.12*	.08	
Resiliency/Energy	.14**	.05	.08	.09	.03	.15*	.11	
Adventure./Modernity	.13**	.09	.09	.05	.06	.14*	.10	
Intellectual Curiosity	.09*	.08	.06	-.01	.03	.08	.04	
Traditional Values	-.02	.04	.01	-.03	-.08	.00	-.04	
Support	.12**	-.04	.06	.02	.04	.08	.02	

* $p < .05$ ** $p < .01$ Note: Sample size varies from 268 to 518. This variability affects tests for significance of correlation coefficients.

SEI. Three of the four scales of the Stress Evaluation Inventory have a consistent pattern of relationships with the criteria, as shown in Table 26. Career, Personal, and Total Stress are weakly to moderately correlated with most of the criteria. However, like many of the measures already considered, they are unable to predict Drinking/Liberty behavior.

Discriminant function models. As the zero-order correlations show, a large number of scales from various instruments would be useful for predicting success of MSGs in school. However, it would not be feasible to administer all of these instruments to new students. Moreover, the use of too many tests would produce unnecessary redundancy, which would only complicate the process of selecting students for MSG duty. In order to provide a basis for deciding which instruments should be used operationally, a number of predictive models were evaluated using stepwise model selection procedures. The purpose of this analysis was not, however, to search for a "best set" of scales to be used in predicting success in MSG school. Rather, it was to determine which instruments would be the most useful in selecting students for MSG duty.

Two criteria were employed in evaluating each predictor. First, it had to demonstrate strong predictive power. Second was its availability and cost if it were to be used by the MSG Battalion. The most available and least costly instrument is the LEQ, since it was developed specifically for, and is currently being used by, the MSG Battalion. This is followed by the SAB, which is the property of the Marine Corps. The next instrument considered is the ABLE, which was developed for the Army and was made available to the MSG Battalion for this study. To date, the ABLE has not been used operationally by the Army or the other services. The MSG Battalion would need to seek approval from the Army to use this instrument at the MSG school. The most costly instruments, of course, are those which are copyrighted, produced, and scored by individual test publishers. This includes all of the remaining tests.

The basic strategy, then, was to simultaneously consider both criteria for selecting predictors, while using a stepwise selection procedure. Thus, the authors considered scales from one instrument at a time, applying the stepwise procedure to the least costly test first and progressing to most costly.

A series of stepwise discriminant function analyses was performed, since the criterion variable (pass/fail status) was dichotomous. The STEPDISC procedure in SAS (SAS Institute, Inc., 1985) was employed, using .05 as the level of significance required for a predictor to enter or remain in the equation.

For the first analysis, all of the scales from the LEQ were considered (with the exception of Total Adjustment, which is a composite of several other scales). The

Table 26
Correlations of SEI Scales with MSG School Criteria for MSGs

<u>SEI SCALES</u>	<u>PASS/ FAIL</u>	<u>FINAL SCORE</u>	<u>PEER RATINGS</u>				<u>RATINGS TOTAL</u>
			<u>PROFESSIONALISM</u>	<u>MILITARY BEARING</u>	<u>DRINKING LIBERTY</u>	<u>OVERALL MOTIVATION</u>	
Career Stress	-.14**	-.07	-.18**	-.14**	-.04	-.18**	-.17**
Family Stress	-.08*	-.02	-.04	-.09*	.03	-.07*	-.05
Personal Stress	-.14**	-.15**	-.16**	-.08*	-.05	-.17**	-.15**
Total Stress	-.15**	-.11**	-.15**	-.12**	-.01	-.17**	-.14**

* $p < .05$

** $p < .01$

Note: Sample size varies from 688 to 921. This variability affects tests for significance of correlation coefficients.

scales that were selected by the stepwise procedure included High School Sociability, Conscientiousness, Ethical Conservatism, and the Sherman Critical Scale. The canonical correlation for this model was .32. The next analysis began with the three scales from the LEQ and considered all of the clusters from the SAB. None of the SAB clusters met the .05 criterion for inclusion in the model. For the third analysis, the three LEQ scales were again forced into the model and each of the scales from the ABLE was evaluated for its marginal contribution to the predictive power of the model. Emotional Stability was the only ABLE scale to enter the model. The canonical correlation was increased to .34. The final analysis began with the three LEQ scales and the one ABLE scale and examined the scales and composites from all of the commercial tests included in the study. Only the Integrated Affection scale from the MAT was able to enter the model and a canonical correlation of .35 was obtained.

Although it would have been desirable to apply shrinkage formulas to the canonical correlations, it was not possible to do so, because of the variation in sample size across instruments. As a substitute, unit-weighted composites were derived for the three models. The correlations between the three unit-weighted composites (LEQ only; LEQ and ABLE; LEQ, ABLE, and MAT) and pass/fail are .27, .31, and .33, respectively. These correlations are somewhat lower than those of the corresponding discriminant function models, but Model 2 is clearly preferable to Model 1, in terms of predictive power and the degree of shrinkage. Thus, the LEQ and ABLE show the greatest promise for predicting success in MSG school. The use of additional instruments would only be of marginal value in improving the prediction of school success.

Predicting MSG Duty Performance

In examining the validity of the various measures for predicting job performance, the job performance ratings made by Detachment Commanders were given primary consideration. Peer ratings of MSG job performance were not given the same consideration because of evidence that called their quality into question. This decision was based on evidence that rendered the quality of peer ratings of job performance questionable. The reader will recall, from the discussion of Table 6, that the peer ratings showed far less variability than the ratings made by Detachment Commanders. This indicates that peers did not differentiate among MSGs as well as Detachment Commanders did. Of even greater concern was the fact that peer ratings of performance in MSG school were not highly correlated with peer ratings of job performance (Table 27). While it seems reasonable to observe a nonsignificant relationship ($r = .07$) between Military Bearing (MSG school) and Core Duties (job performance), one would at least expect to see a strong relationship between the total score on peer ratings taken at two points in time. That is, the total score on

peer ratings should represent a global evaluation of the MSG and that global peer evaluation should be relatively constant over time, for most individuals. Although this relationship is significant, the magnitude of the correlation is much lower than one would reasonably expect ($r = .17$).

Table 27

Relationship of MSG School Peer Ratings to
Peer Ratings of MSG Job Performance

MSG SCHOOL PEER RATINGS	PEER RATINGS JOB PERFORMANCE			
	CORE DUTIES	PERSONAL QUALITIES	SELF-DISCIPLINE	TOTAL COMPOSIT
Professionalism	.14**	.19**	.13**	.17**
Military Bearing	.07	.08	.20**	.11*
Drinking/Liberty	.08	.11*	.10*	.10*
Overall Motivation	.14**	.16**	.14**	.15**
Ratings Total	.14**	.18**	.17**	.17**

* $p < .05$

** $p < .01$

Note: Sample size varies from 434 to 447.

In view of these reservations regarding the peer ratings of job performance, only the correlations of the predictors with Detachment Commander ratings will be discussed in detail. The correlations of predictor scores with peer ratings are provided in Appendix A.

Performance in MSG school. The first set of analyses focused on the degree to which measures of performance in MSG school are predictive of MSG duty performance. Table 28 displays the correlations for final score and peer ratings from MSG school with Detachment Commander ratings of MSG job performance for the predictive sample. Final score in MSG school is significantly related to Core Duties, Overall Effort, and Total Composite. However, final score is not as strong a predictor of job performance criteria as the peer ratings from MSG school. With the exception of Drinking/Liberty, each of the school peer rating factors is moderately correlated with several job performance criteria.

Table 28

**Relationship of MSG School Criteria to Detachment
Commander Ratings of MSG Job Performance**

<u>MSG SCHOOL CRITERIA</u>	<u>DETACHMENT COMMANDER RATINGS</u>				
	<u>CORE DUTIES</u>	<u>INTERPERSONAL</u>	<u>OVERALL EFFORT</u>	<u>SELF- DISCIPLINE</u>	<u>TOTAL COMPOSITE</u>
Final Score	.18**	.08	.17**	.04	.15**
PEER EVALUATIONS					
Professionalism	.15**	.19**	.23**	.16**	.20**
Military Bearing	.11	.13*	.28**	.11*	.17**
Drinking/Liberty	.06	.06	.12*	.03	.08
Overall Motivation	.15**	.16**	.24**	.09	.18**
Ratings Total	.15**	.17**	.26**	.12*	.20**

* $p < .05$

** $p < .01$

Note: Sample size varies from 315 to 351. This variability affects tests for significance of correlation coefficients.

The remaining tables show the relationship of psychological instruments to Detachment Commander ratings of job performance. The correlation coefficients in these tables have been corrected for both range restriction on the predictor and criterion unreliability. Uncorrected correlations of predictor scores with both peer and Detachment Commander ratings of MSG job performance are provided in Appendix B.

LEQ. Table 29 presents correlations for nine LEQ scales with MSG job performance ratings made by Detachment Commanders. The Sherman Critical and Total Adjustment scales are the best predictors overall. The Sherman Critical scale shows moderate correlations with each of the job performance criteria. Total Adjustment exhibits stronger correlations, but with only three of the criteria. Other scales which are moderately correlated with several criteria are High School Academics, High School Adjustment, and the Parker-Fitz scale. These scales were also shown to be good predictors of the MSG school criteria (see Table 18).

Table 29

**Corrected Correlations of LEQ Scales with Detachment
Commander Ratings of MSG Job Performance**

<u>LEQ SCALES</u>	<u>DETACHMENT COMMANDER RATINGS</u>				
	<u>CORE DUTIES</u>	<u>INTERPERSONAL</u>	<u>OVERALL EFFORT</u>	<u>SELF- DISCIPLINE</u>	<u>TOTAL COMPOSITE</u>
H.S. Academics	.08	.15	.16*	.22**	.16*
H.S. Adjustment	.21**	.13	.18*	.09	.19**
H.S. Sociability	.10	-.02	.01	-.09	.04
Legal/Alcohol	-.15	-.14	-.08	-.07	-.15
Conscientiousness	.05	.16	.08	.08	.11
Cooperativeness	.18	.31*	.14	.16	.23
Parker-Fitz	.09	.17*	.20*	.17*	.16*
Sherman Critical	.17*	.21**	.22**	.20*	.21**
Total Adjustment	.29*	.28*	.23	.11	.28*

* $p < .05$

** $p < .01$

Note: Correlation coefficients have been corrected for range restriction and criterion unreliability. Sample size varies from 60 to 151. This variability affects tests for significance of correlation coefficients.

SAB. Most of the SAB scales show low to moderate correlations with the job performance criteria, with some exceptions (see Table 30). The scales Organization, Age, Stable, and Delinquency show the strongest correlations across the rating factors and are at least moderately correlated with the Total Composite. The cluster Good Natured is the best predictor of the Interpersonal rating factor ($r = .19$), which is a reasonable association. Also, Exhibitionism is related to poor ratings on Self-Discipline ($r = -.17$).

These results differ somewhat from those obtained with the MSG school criteria (see Table 19). In that instance, Dominance, Well Being, Organization, and Methodical were the scales which were most predictive of the criteria.

Table 30

**Corrected Correlations of SAB Scales with Detachment
Commander Ratings of MSG Job Performance**

<u>SAB SCALES</u>	<u>DETACHMENT COMMANDER RATINGS</u>				
	<u>CORE DUTIES</u>	<u>INTERPERSONAL</u>	<u>OVERALL EFFORT</u>	<u>SELF- DISCIPLINE</u>	<u>TOTAL COMPOSITE</u>
C1 Dominance	.02	-.04	.00	-.12**	-.03
C2 Well Being	.09*	.11**	.08	.04	.09*
C3 Good Natured	.03	.19**	.02	.11*	.08*
C4 Exhibitionism	-.09*	-.07	-.07	-.17**	-.12**
C5 Organization	.11*	.11*	.20**	.12**	.15**
C6 Age	.12**	.11**	.10*	.12**	.14**
C7 Extroversion	.02	.04	-.03	-.12**	-.03
C8 Methodical	.09*	.03	.03	.08	.07
C9 Religious/Abstention	-.04	.04	.06	.12	.04
C10 Even Tempered	.06	.12**	.06	.04	.07
C11 Hard Working	.09*	.04	.14**	.07	.10*
C12 Cautious	.00	.04	.08*	.13**	.07
C13 Marriage	.05	-.02	.05	.04	.05
C14 Stable	.16**	.12**	.08	.13**	.15**
C15 Spontaneity	-.11*	-.06	-.09*	-.11**	-.10*
C16 Delinquency	-.11**	-.05	-.18**	-.20**	-.15**

* $p < .05$

** $p < .01$

Note: Correlation coefficients have been corrected for range restriction and criterion unreliability. Sample size varies from 545 to 562. This variability affects tests for significance of correlation coefficients.

ABLE. Most ABLE substantive scales exhibit a pattern of moderate to strong correlations with the job performance criteria, as shown in Table 31. The scale Conscientiousness demonstrates the highest correlation with four of the five rating factors: Core Duties ($r = .19$), Overall Effort ($r = .30$), Self-Discipline ($r = .28$), and Total Composite ($r = .26$). Cooperativeness is the scale most closely related to the criterion Interpersonal ($r = .29$). Nondelinquency, Work Orientation, and Energy Level also show generally strong relationships across the criteria.

Scales of the ABLE were also quite successful in predicting the MSG school criteria (see Table 20). In fact, of all of the instruments, the ABLE appears to perform best in predicting performance on the job as well as performance in school.

Table 31

**Corrected Correlations of ABLE Scales with Detachment
Commander Ratings of MSG Job Performance**

<u>ABLE SCALES</u>	<u>DETACHMENT COMMANDER RATINGS</u>				
	<u>CORE DUTIES</u>	<u>INTERPERSONAL</u>	<u>OVERALL EFFORT</u>	<u>SELF- DISCIPLINE</u>	<u>TOTAL COMPOSITE</u>
SUBSTANTIVE SCALES					
Emotional Stability	.13**	.17**	.12**	.11*	.14**
Self Esteem	.03	.01	.07	-.02	.03
Cooperativeness	.17**	.29**	.20**	.22**	.23**
Conscientiousness	.19**	.18**	.30**	.28**	.26**
Nondelinquency	.14**	.20**	.20**	.25**	.21**
Traditional Values	.07	.16**	.12**	.19**	.13**
Work Orientation	.15**	.14**	.25**	.14**	.20**
Internal Control	.07	.09*	.10*	.04	.08
Energy Level	.16**	.12**	.22**	.11*	.17**
Dominance	.02	.02	.06	-.04	.03
Physical Condition	.04	.06	.11**	-.03	.06
VALIDITY SCALES					
Social Desirability	.16**	.13**	.21**	.20**	.20**
Self-Knowledge	-.02	-.02	.05	.03	.01
Random Response	.00	.00	-.02	.01	.01
Poor Impression	.00	-.05	.00	.01	-.01

* $p < .05$

** $p < .01$

Note: Correlation coefficients have been corrected for range restriction and criterion unreliability. Sample size varies from 538 to 542. This variability affects tests for significance of correlation coefficients.

16PF. The 16PF primary and second-order scale correlations with job performance criteria show that only a few scales have consistent relationships across the criteria (Table 32).

The scale Conscientious is by far the best predictor of Detachment Commander ratings. It is significantly correlated with: Core Duties ($r = .17$), Interpersonal ($r = .15$), Overall Effort ($r = .25$), Self-Discipline ($r = .17$), and Total Composite ($r = .22$). Controlled and Tense are the only other scales with moderate correlations across all criteria. The scales Enthusiastic, Self-Sufficient, Extraversion, and Anxiety are each moderately related to four of the criteria.

Table 32

**Corrected Correlations of 16PF Scales with Detachment
Commander Ratings of MSG Job Performance**

<u>16PF SCALES</u>	<u>DETACHMENT COMMANDER RATINGS</u>				
	<u>CORE DUTIES</u>	<u>INTERPERSONAL</u>	<u>OVERALL EFFORT</u>	<u>SELF-DISCIPLINE</u>	<u>TOTAL COMPOSITE</u>
PRIMARY FACTORS					
A Warm	-.03	-.07	-.02	-.11**	-.06
B Intelligent	.04	.05	.02	.00	.04
C Emotionally Stable	.10*	.09*	.01	.02	.06
E Assertive	.08	-.02	.05	-.09*	.01
F Enthusiastic	.14**	.10*	.13**	-.04	.10*
G Conscientious	.17**	.15**	.25**	.17**	.22**
H Bold	.14**	.08*	.10*	-.04	.09*
I Tender-minded	-.02	.00	-.04	.01	-.01
L Suspicious	-.07	-.11**	-.01	-.09*	-.07
M Imaginative	.00	-.04	-.06	-.01	-.02
N Shrewd	-.03	.05	-.03	.00	-.01
O Apprehensive	-.14**	-.12**	-.06	-.05	-.11**
Q1 Experimenting	-.02	-.08	-.01	.00	-.03
Q2 Self-Sufficient	-.14**	-.13**	-.11*	.00	-.11**
Q3 Controlled	.12**	.15**	.11*	.11*	.13**
Q4 Tense	-.15**	-.18**	-.12**	-.15**	-.16**
SECOND-ORDER FACTORS					
QI Extraversion	.16**	.10*	.13**	-.05	.11*
QII Anxiety	-.18**	-.18*	-.08	-.13**	-.16**
QIII Tough Poise	.05	.08	.07	.02	.06
QIV Independence	.05	-.04	.03	-.11*	-.01

* $p < .05$ ** $p < .01$

Note: Correlation coefficients have been corrected for range restriction and criterion unreliability. Sample size is 552.

Conscientious also proved the best predictor of MSG school pass/fail and overall peer ratings (Table 21), while Anxiety and Tense held the highest negative correlations with the same criteria.

16PF composites. 16PF composite scale correlations with job performance criteria, shown in Table 33, are generally higher than those for the primary 16PF scales. Of the Occupational scales, Accident, Psychological Technician, Criminal, and Alcoholic are most highly related to Detachment Commander ratings.

Table 33

**Corrected Correlations of 16PF Composites with Detachment
Commander Ratings of MSG Job Performance**

<u>16PF COMPOSITE SCALES</u>	<u>DETACHMENT COMMANDER RATINGS</u>				
	<u>CORE DUTIES</u>	<u>INTERPERSONAL</u>	<u>OVERALL EFFORT</u>	<u>SELF- DISCIPLINE</u>	<u>TOTAL COMPOSITE</u>
OCCUPATIONAL SCALES					
Police 1	-.03	.04	-.05	.13**	.01
Freedom from Accidents	.18**	.21**	.18**	.17**	.21**
Psychological Technician	.17**	.18**	.15**	.09*	.17**
Counselor	.09*	-.01	.08	-.07	.04
Football Player	.06	-.03	.08	-.09*	.01
Police2	.01	-.04	.00	-.06	-.02
Janitor	-.10*	-.08	-.17**	-.14**	-.14**
Alcoholic	-.21**	-.20**	-.15**	-.10*	-.19**
Criminal	-.20**	-.22**	-.16**	-.13**	-.20**
NUCLEAR REGULATORY AGENCY SCALES					
Decision	.05	.14**	.05	.06	.07
Decision Rank	.18**	.19**	.16**	.12**	.18**
Decision Model Index	.26**	.28**	.25**	.16**	.27**
MSG STUDY SCALES					
MSG Field Performance	.21**	.19**	.19**	.11**	.20**
MSG School Performance	.08	.06	.10*	.09*	.10*
SELECTED COMPOSITE SCALES					
Control	.17**	.19**	.22**	.19**	.22**
Depression	-.20**	-.23**	-.21**	-.12**	-.23**
Psychoticism	-.21**	-.28**	-.23**	-.15**	-.25**
Neuroticism	-.11*	-.02	-.04	.07	-.03
Leadership	.23**	.22**	.20**	.07	.21**
Accident Proneness	-.16**	-.20**	-.17**	-.18**	-.20**
Integration	.07	.06	.09*	-.03	.07
Interest	.01	.11**	.05	.12**	.08
Conflict	.01	.01	.01	.03	.01

* $p < .05$ ** $p < .01$

Note: Correlation coefficients have been corrected for range restriction and criterion unreliability. Sample size varies from 511 to 552. This variability affects tests for significance of correlation coefficients.

Both MSG study scales show a moderate relationship to the ratings. In particular, correlations for the MSG Field Performance scale are at the level of the best Occupational Scales.

Five of the nine selected scales show relatively strong relationships with the criteria. They include Control, Depression, Psychoticism, Leadership, and Accident Proneness, with Psychoticism being the best overall predictor.

Of the three Nuclear Regulatory Agency scales, Decision Model Index is clearly the best predictor of positive job performance ratings. It is also the strongest overall predictor found in Table 33, especially in relation to Core Duties ($r = .26$), Interpersonal ($r = .28$), Overall Effort ($r = .25$), and Total Composite ($r = .27$).

Correlations for the 16PF composites, as discussed above, largely repeated the patterns with MSG school criteria (see Table 22). Decision Model Index was clearly the best predictor of school performance (as it was with the job ratings by Detachment Commanders), while the specific occupational, MSG study, and selected scales all performed in a very similar manner.

CAQ. All but three of the CAQ clinical scales show moderate correlations with the MSG job performance ratings completed by Detachment Commanders (see Table 34). The Schizophrenia and Psychological Inadequacy scales are clearly the best predictors of poor job performance ratings. The former correlates the highest with Interpersonal ($r = -.24$), Overall Effort ($r = -.23$), Self-Discipline ($r = -.17$), and the Total Composite ($r = -.24$). Psychological Inadequacy has the strongest correlation with Core Duties ($r = -.21$). The other clinical scales, with the exception of Agitation, Anxious Depression, and Psychopathic Deviation, all maintain moderate correlations with the criteria.

The general patterns of correlation discussed above are also seen with the MSG school criteria. As with the Detachment Commander ratings, Schizophrenia proved the best overall predictor of pass/fail and peer ratings (Table 24).

APOI. Only two scales of the APOI are moderately correlated with the job performance criteria (see Table 35). These scales are Traditional Values and Support. The remaining correlations are weak, most of them being near zero.

Comparing these results to those obtained with MSG school criteria, four APOI scales were able to predict the MSG pass/fail criteria at significant levels (Table 25). Of those four, however, only Support shows any relationship with the job performance criteria, as shown in Table 35.

Table 34

**Corrected Correlations of CAQ Scales with Detachment
Commander Ratings of MSG Job Performance**

<u>CAQ SCALES</u>	<u>DETACHMENT COMMANDER RATINGS</u>				
	<u>CORE DUTIES</u>	<u>INTERPERSONAL</u>	<u>OVERALL EFFORT</u>	<u>SELF- DISCIPLINE</u>	<u>TOTAL COMPOSITE</u>
Hypochondriasis	-.11*	-.16**	-.16**	-.08	-.15**
Suicidal Depression	-.16**	-.21**	-.13**	-.12**	-.18**
Agitation	-.01	.03	-.01	-.05	.00
Anxious Depression	-.05	-.07	-.06	-.03	-.06
Low Energy Depression	-.15**	-.15**	-.17**	-.11*	-.17**
Guilt/Resentment	-.18**	-.16**	-.11*	-.18**	-.17**
Bored Depression	-.19**	-.19**	-.20**	-.07	-.20**
Paranoia	-.11**	-.20**	-.13**	-.09*	-.15**
Psychopathic Deviation	.06	.01	-.01	.00	.02
Schizophrenia	-.20**	-.24**	-.23**	-.17**	-.24**
Psychasthenia	-.11*	-.15**	-.10*	-.13**	-.13**
Psychological Inadequacy	-.21**	-.22**	-.22**	-.13**	-.23**
Faking Good	.16**	.14**	.14**	.16**	.17**

* $p < .05$ ** $p < .01$

Note: Correlation coefficients have been corrected for range restriction and criterion unreliability. Sample size is 514.

Table 35

**Corrected Correlations of APOI Scales with Detachment
Commander Ratings of MSG Job Performance**

<u>APOI SCALES</u>	<u>DETACHMENT COMMANDER RATINGS</u>				
	<u>CORE DUTIES</u>	<u>INTERPERSONAL</u>	<u>OVERALL EFFORT</u>	<u>SELF- DISCIPLINE</u>	<u>TOTAL COMPOSITE</u>
Ego Development	-.07	-.05	.00	.04	-.02
Sociability	.09	.05	.04	-.03	.04
Resiliency/Energy	.08	.01	.05	.00	.03
Adventure/Modernity	.06	.03	.04	.01	.04
Intellectual Curiosity	.07	.03	.05	.04	.06
Traditional Values	.01	.17**	.16**	.13**	.12**
Support	.12**	.16**	.14**	.06	.14**

* $p < .05$ ** $p < .01$

Note: Correlation coefficients have been corrected for range restriction and criterion unreliability. Sample size is 485.

SEI. High stress as measured by the SEI shows a consistent relationship with poor MSG job performance as rated by Detachment Commanders (see Table 36). The scale Personal Stress holds the strongest correlations with most of the criteria, registering a correlation of -.22 with the Total Composite.

For the MSG school criteria, Career Stress was the best predictor, followed by Personal Stress (Table 26).

Table 36
**Corrected Correlations of SEI Scales with Detachment
Commander Ratings of MSG Job Performance**

<u>SEI SCALES</u>	<u>DETACHMENT COMMANDER RATINGS</u>				
	<u>CORE DUTIES</u>	<u>INTERPERSONAL</u>	<u>OVERALL EFFORT</u>	<u>SELF- DISCIPLINE</u>	<u>TOTAL COMPOSITE</u>
Career Stress	-.08	-.18**	-.12**	-.09*	-.15**
Family Stress	-.11*	-.13**	-.15**	-.16**	-.15**
Personal Stress	-.21**	-.21**	-.20**	-.14**	-.22**
Total Stress	-.17**	-.21**	-.18**	-.15**	-.21**

* $p < .05$

** $p < .01$

Note: Correlation coefficients have been corrected for range restriction and criterion unreliability. Sample size is 514.

Regression models. Similar to the findings for the MSG school criteria, the zero-order correlations between the predictors and the measures of MSG duty performance revealed that a number of the scales from the different instruments are good predictors of MSG duty performance. To help determine which instruments should be put into operational use, a series of regression analyses were conducted, corresponding to the discriminant function analyses described above. Again, the purpose of these analyses was not to discover the "best set" of scales for predicting performance, but rather to determine which instruments would probably be the most useful in selecting students for MSG duty.

As with previous analyses, predictive power, availability, and cost were the primary considerations in the selection of predictors. Also, the series of analyses considered scales from only one instrument at a time, beginning with the most available and least costly. Since the LEQ was not administered at MSG duty sites, the sample size for many of its scales was considered too small, and it was not included in these analyses.

One of the technical difficulties encountered was that the stepwise regression procedure in SAS did not permit the use of correlation matrices in place of raw data. The only alternative, using SAS, was to compute all possible regression models for each set of predictors (SAS Institute, Inc., 1985). Three statistical indices were used to evaluate the models. The first was the change in R^2 resulting from the addition of a predictor to a model. Since there are no rules for the use of this measure, the decision was made to include an additional predictor only if it would account for more than an additional one percent of the variance in the job performance measure. An exception to this rule was made when the other two indices favored the inclusion of additional predictors. The other indices were mean square error (MSE) for the model and C_p ^a. Only the C_p and R^2 criteria proved to be useful for the analyses (as there was very little variability in MSE), with C_p being used as the primary criterion and the change in R^2 employed to insure that the models would not be picking up trivial amounts of variance in the criterion measure.

Three models were selected for predicting Detachment Commander ratings of MSG job performance. Model 1, containing three SAB clusters (Organization, Stable, and Delinquency), performs fairly well in predicting the criterion ($R = .24$). With the addition of three ABLE scales (Self Esteem, Cooperativeness, and Conscientiousness) in Model 2, there is a considerable increase in the magnitude of the multiple correlation ($R = .37$). However, the inclusion of Traditional Values from the APOI, in Model 3, affords only a modest gain in predictive power ($R = .38$).

The use of shrinkage formulas would have been useful in evaluating the models, but due to the variation in sample size across instruments, this was not possible. As an alternative, unit-weighted composites were derived for the three models. The correlations between the three unit-weighted composites (SAB only; SAB and ABLE; SAB, ABLE, and APOI) and the criterion measure are .15, .20, and .20, respectively. These correlations are considerably lower than those of the corresponding regression models. However, the models perform in a similar fashion. That is, Model 2 predicts the criterion somewhat better than does Model 1, but the increase in predictive power for Model 3 over Model 2 is negligible.

^aFor a technical description of the use of these indices in model selection, the reader is referred to Neter & Wasserman (1974, pp. 375 - 382).

Clearly, the SAB and ABLE show the greatest promise for predicting how well an MSG will perform on duty. As was the case with the stepwise discriminant function analyses, the results indicate that the use of additional instruments would only be of marginal value in improving the prediction of MSG duty performance.

Selecting Detachment Commanders

Predicting MSG School Criteria

The small number of Detachment Commander candidates in the sample is a limiting factor in evaluating the relationship between predictors and MSG school criteria. Exacerbating this problem is the fact that some instruments, such as the LEQ and ABLE, were only administered to three of the six classes under consideration. Nevertheless, it will be seen that for most instruments, and specifically those being considered for operational use, Detachment Commander school performance can be predicted in much the same manner as MSG school performance. Only the results for the LEQ, SAB, and ABLE will be discussed here, since only these instruments are being seriously considered for operational use with MSGs, based on the results shown above. Tables for the 16PF, 16PF Composites, MAT, CAQ, APOI, and SEI can be found in Appendix C.

Table 37 shows correlations between LEQ scales and the pass/fail criterion for Detachment Commanders across classes. LEQ scale correlations with the final score and peer rating factors are not presented because the sample size was far too low (less than 20).

Four of the homogeneous scales and two nonhomogeneous scales are significantly correlated with pass/fail. Moreover, four of the seven LEQ scales that have significant correlations with pass/fail for the MSG sample show the same relationship with the Detachment Commander sample. The two nonhomogeneous scales, Sherman Critical and Total Adjustment, showed the highest correlations ($r = .35$ and $.43$, respectively). However, the correlations for the four homogeneous scales were also strong ($.31$ for High School Academics, $.29$ for High School Adjustment, $.31$ for Conscientiousness, and $.31$ for Cooperativeness).

Table 37

**Correlations of LEQ Scales with MSG School
Pass/Fail Status for Detachment Commanders**

<u>LEQ SCALES</u>	<u>PASS/FAIL^a</u>
I. CONTENT HOMOGENEOUS	
Traditional Values	.23
H.S. Academics	.31*
H.S. Adjustment	.29*
H.S. Sociability	.24
Home/Family Life	.14
Legal/Alcohol Trouble	-.08
Conscientiousness	.31*
Cooperativeness	.31*
Physical Fit./Smoking	.31
Ethical Conservatism	-.08
Social Desirability	.10
II. NONHOMOGENEOUS	
Parker-Fitz	.25
S-Scale	N/A
Sherman Critical	.35*
Total Adjustment	.43**

* $p < .05$

** $p < .01$

Note: Sample size varies from 34 to 49. This variability affects tests for significance of correlation coefficients.

^a Correlations with other MSG school criteria are not shown because of reduced sample size.

Table 38 presents the SAB scale correlations with MSG school criteria for Detachment Commanders. The pattern of significant correlations is essentially the same as that observed with the MSG sample. The magnitude of correlations is much greater, however, perhaps as a result of capitalization on chance, due to a small sample size.

The cluster scales Dominance, Extroversion, and Hard Working show strong, statistically significant correlations with pass/fail status. Dominance and Hard Working are also strongly correlated with the peer rating criteria, but Extroversion has no significant relationship with any criterion other than pass/fail. On the other hand, Methodical shows a strong relationship with the peer ratings criteria but not with pass/fail. Only the scale Spontaneity bears a significant relationship to final score.

Table 38
Correlations of SAB Scales with MSG School Criteria for Detachment Commanders

SAB SCALES	PASS/ FAIL	FINAL SCORE	PEER RATINGS					RATINGS TOTAL
			PROFESSIONALISM	MILITARY BEARING	DRINKING LIBERTY	OVERALL MOTIVATION		
C1- Dominance	.23*	.03	.37**	.38**	.29*	.58**	.47**	
C2- Well Being	.16	.18	.11	-.02	.18	.06	.10	
C3- Good Natured	.05	.04	-.01	-.06	-.02	-.04	-.03	
C4- Exhibitionism	.10	-.10	-.12	-.10	-.39**	-.09	-.18	
C5- Organization	.18	.02	.21	.17	.24	.23	.24	
C6- Age	.08	-.12	.32*	-.19	.15	.31*	.22	
C7- Extroversion	.25*	-.21	-.20	-.06	-.13	-.17	-.18	
C8- Methodical	.18	.14	.46**	.37**	.45**	.49**	.51**	
C9- Religious/Abstention	-.01	-.11	-.08	.21	.18	-.01	.04	
C10-Even Tempered	-.03	-.01	.03	-.05	.19	-.03	.03	
C11-Hard Working	.28**	.05	.36**	.32*	.26	.50**	.42**	
C12-Cautious	.00	.14	-.05	.05	.17	-.06	.00	
C13-Marriage	.20	.03	.24	.14	.15	.23	.23	
C14-Stable	.17	.12	.11	-.01	.10	.14	.11	
C15-Spontaneity	.02	-.32*	.14	-.03	-.18	.07	.04	
C16-Delinquency	-.08	-.02	-.06	-.29*	-.19	-.01	-.13	

* $p < .05$

** $p < .01$

Note: Sample size varies from 49 to 83. This variability affects tests for significance of correlation coefficients.

Correlations between the ABLE scales and the pass/fail criterion for the Detachment Commander sample are displayed in Table 39. As with the LEQ, correlations of scale scores with final score at MSG school and the peer rating factors are not shown because of extremely small sample sizes. Only three of the ABLE substantive scales show significant correlations with pass/fail: Cooperativeness ($r = .33$), Conscientiousness ($r = .35$), and Nondelinquency ($r = .32$).

Table 39

**Correlations of ABLE Scales with MSG School
Pass/Fail Status for Detachment Commanders**

<u>ABLE SCALES</u>	<u>PASS/FAIL^a</u>
SUBSTANTIVE SCALES	
Emotional Stability	.26
Self-Esteem	.26
Cooperativeness	.33*
Conscientiousness	.35*
Nondelinquency	.32*
Traditional Values	.22
Work Orientation	.17
Internal Control	.21
Energy Level	.27
Dominance	.18
Physical Condition	.15
VALIDITY SCALES	
Social Desirability	.06
Self-Knowledge	-.20
Random Response	.06
Poor Impression	-.11

* $p < .05$

** $p < .01$

Note: Sample size is 45.

^a Correlations with other MSG school criteria are not shown because of reduced sample size.

To summarize, the pattern of LEQ, SAB, and ABLE scale correlations with school criteria for Detachment Commanders is much the same as that seen with MSGs. While not every meaningful correlation for one sample is replicated in the other, the instruments perform similarly in the two samples.

Predicting Detachment Commander Duty Performance

Correlations between the SAB scales and RSO ratings of Detachment Commander performance are displayed in Table 40. The clusters Good Natured, Spontaneity, and Delinquency show moderate to strong correlations with each of the criteria, with Delinquency appearing to be the strongest predictor overall. Several other scales had moderate to strong relationships with three or four criterion measures. These were Dominance, Exhibitionism, Organization, Religious/Abstention, Even Tempered, and Hard Working.

Table 40

Corrected Correlations of SAB Scales with RSO Ratings of Detachment Commander Job Performance

<u>SAB SCALES</u>		<u>RSO RATINGS</u>				
		<u>CORE DUTIES</u>	<u>INTERPERSONAL</u>	<u>SELF- DISCIPLINE</u>	<u>RELATIONSHIP with DETACHMENT</u>	<u>TOTAL COMPOSITE</u>
C1	Dominance	.17	-.08	.20	.22	.14
C2	Well Being	.06	.05	-.13	-.15	.00
C3	Good Natured	-.23*	-.14	-.24*	-.16	-.22
C4	Exhibitionism	.15	.00	.06	.27*	.12
C5	Organization	.19	.05	.14	-.14	.11
C6	Age	-.03	-.14	-.02	.07	-.06
C7	Extroversion	.12	.04	-.02	.07	.08
C8	Methodical	-.01	-.11	-.07	.04	-.04
C9	Religious/Abstention	-.16	-.16	-.16	-.13	-.18
C10	Even Tempered	.20	.11	.18	.01	.16
C11	Hard Working	.28*	.24*	.09	.25*	.26*
C12	Cautious	.00	-.06	-.19	-.27*	-.10
C13	Marriage	.02	.02	-.03	.14	.02
C14	Stable	.16	.09	-.17	.02	.07
C15	Spontaneity	.14	.15	.19	.30	.19
C16	Delinquency	-.29*	-.26*	-.30**	-.25*	-.32**

* $p < .05$

** $p < .01$

Note: Correlation coefficients have been corrected for range restriction and criterion unreliability. Sample size is 73.

Table 41 gives the correlations between the ABLE scales and Detachment Commander job performance ratings made by RSOs. Consistent with previous findings, each of the ABLE scales shows moderate to strong correlations with

multiple criteria. However, it may be inappropriate to make comparisons among the scales in view of the evidence of sampling error in these findings. Specifically, several correlation coefficients are suspiciously high, given the nature of the variables being examined. Notice also that most of the correlations for Cooperativeness, Conscientiousness, and Nondelinquency are negative. This is logically inconsistent, as well as being inconsistent with the findings presented above.

Table 41
Corrected Correlations of ABLE Scales with RSO
Ratings of Detachment Commander Job Performance

<u>ABLE SCALES</u>	<u>RSO RATINGS</u>				
	<u>CORE DUTIES</u>	<u>INTERPERSONAL</u>	<u>SELF-DISCIPLINE</u>	<u>RELATIONSHIP with DETACHMENT</u>	<u>TOTAL COMPOSITE</u>
SUBSTANTIVE SCALES					
Emotional Stability	.56**	.14	.08	.18	.38**
Self Esteem	.43**	.17	.27	.02	.31**
Cooperativeness	-.02	.20	-.10	-.12	.00
Conscientiousness	-.16	-.21	-.02	-.37**	-.20
Nondelinquency	-.07	-.15	-.04	-.30**	-.13
Traditional Values	.09	.06	.16	-.11	.09
Work Orientation	.33**	.11	.11	.09	.22
Internal Control	.47**	.23	.19	.18	.37**
Energy Level	.26*	.02	.05	-.04	.14
Dominance	.62**	.31**	.18	.38**	.50**
Physical Condition	.16	.14	.01	.02	.11
VALIDITY SCALES					
Social Desirability	.01	.04	-.04	-.20	-.03
Self-Knowledge	.09	-.03	.01	.06	.05
Random Response	-.08	-.19	-.17	-.08	-.12
Poor Impression	.02	.04	.15	.17	.08

* $p < .05$

** $p < .01$

Note: Correlation coefficients have been corrected for range restriction and criterion unreliability. Sample size is 67.

To summarize the findings with respect to Detachment Commanders, the LEQ, SAB, and ABLE would clearly aid in deciding which individuals should be selected for MSG duty. However, because of the small sample size, the results should be interpreted with caution.

Tables for the corrected 16PF, 16PF Composites, CAQ, APOI, and SEI scale correlations with RSO Ratings of Detachment Commander job performance can be found in Appendix D. Tables of uncorrected correlations for LEQ, SAB, ABLE, 16PF, 16PF Composites, CAQ, APOI, and SEI scales with RSO Ratings of Detachment Commander job performance are provided in Appendix E.

DISCUSSION

Many of the background variables and psychological test scales predicted MSG school and job performance measures at a level of statistical significance. The observed relationships between predictors and job performance are impressive, especially since they were obtained with highly skewed job performance ratings. For example, on a seven-point scale, the mean rating of MSGs by Detachment Commanders was over 6 and that of Detachment Commanders by RSOs was over 5.5. The skewed ratings restrict the variance on the criterion which results in reducing the magnitude of the correlation coefficients between the predictors and criteria. Therefore, the fact that sizable relationships were obtained, despite the statistical restrictions, argues for the practical significance and utility of the background variables and tests for the MSG program.

Several issues influenced the direction of the analyses regarding which tests and measures should be used by the MSG Battalion. Time and cost considerations dictate that the number of tests used in screening and selecting MSGs and Detachment Commanders should be kept to a minimum. It is also necessary to effect the correct balance in screening and selection. On the one hand, there is a need to reduce the number of unsuccessful individuals who are accepted into MSG school and the MSG program. On the other hand, the screening and selection cannot be so restrictive that they would eliminate individuals with a reasonable probability of success as an MSG or Detachment Commander. The following discussion will first address the screening of applicants to MSG school and then the selection of students for MSG and Detachment Commander duty.

Screening Applicants for MSG School

Analyses of background information variables for MSGs demonstrated that GT score, PFT score, and financial obligation have significant relationships with pass/fail in MSG school. Figures 2 - 4 indicate that enlisted applicants to the MSG program with a GT score below 90, or a PFT score below 170, or a financial obligation of \$11,000 or greater, are poor risks for the MSG program. Sherman et al. (1978) observed similar relationships between these last two record variables and pass/fail status. The mean PFT score for successful MSG candidates was considerably higher than that for unsuccessful candidates. MSG students who admitted to previous financial problems were three times more likely to fail than those without previous financial problems.

The GT, PFT, and financial measures may be obtained directly from applicants or taken from records. Therefore, it would be simple to employ them in screening

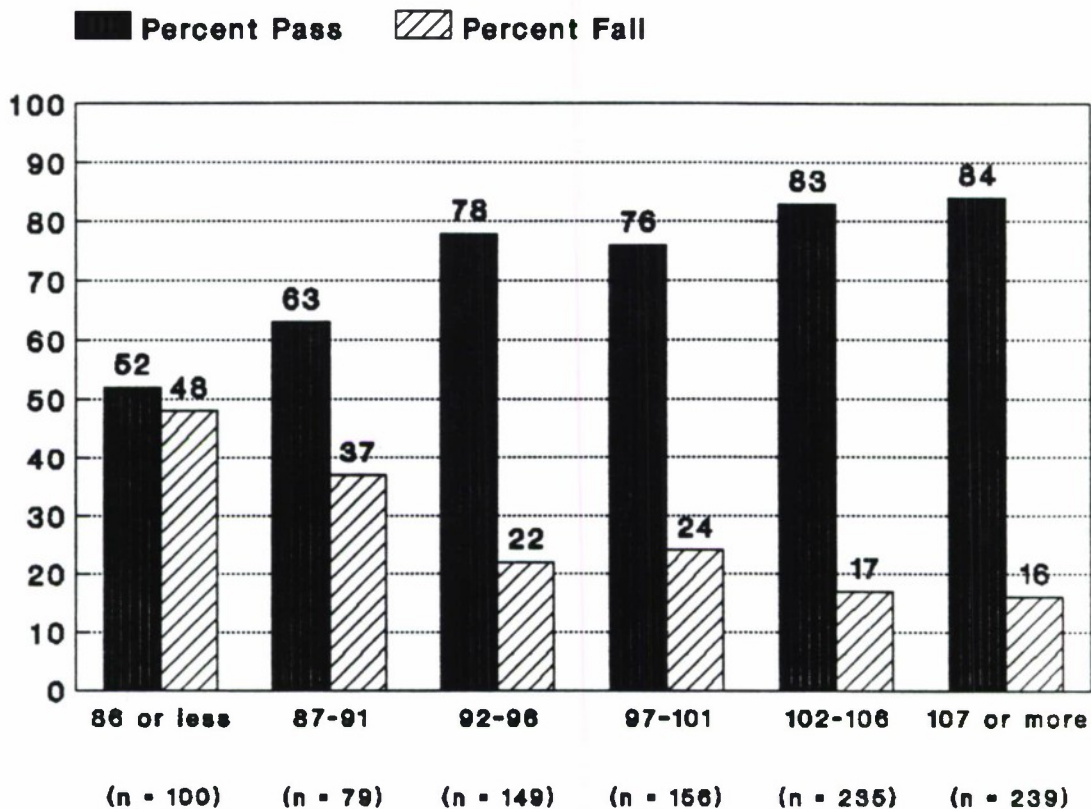
for the MSG school. This information would provide commands with empirically derived indices for screening applicants and would enable the MSG Battalion to reduce attrition at the MSG school.

In addition, the graduation rate at the school and performance on MSG duty could be improved by using these measures in conjunction with a psychological test. While the data showed that a number of different instruments could serve this function, the criteria adopted earlier (i.e., improving prediction while minimizing additional cost) required us to first give consideration to the Marine Corps Special Assignment Battery. In previous research (Atwater et al., 1986) the SAB had been shown to relate to the performance of Marine Corps recruiters and drill instructors. Based on their findings, Atwater et al. recommended implementation of the SAB as one of the selectors in assigning Marines to recruiter and drill instructor duty and evaluation of its effectiveness in predicting performance in other specialized duty assignments. The validity of the SAB in predicting MSG school and job performance in the current study is further evidence of its potential utility to the Marine Corps.

To determine whether the SAB could be useful in screening MSG applicants, it was first necessary to construct a single score that would represent performance on the test. A composite was derived by summing across the eight scales that showed a statistically significant correlation to pass/fail status (Dominance, Well Being, Organization, Methodical, Even Tempered, Hard Working, Cautious, and Stable).

Figure 7 displays the SAB composite score distribution in relation to pass/fail in MSG school. It is clear that those scoring in the lowest 10 percent of the distribution, an SAB score of less than 87, have only a .52 probability of successfully completing MSG school and becoming MSGs. In comparison, individuals in all other score categories have probabilities of .63 to .84 of passing the school.

If the SAB were to be employed in screening MSGs, it could be used operationally in the following manner. Commands would first identify individuals who would be available for MSG duty and who meet the eligibility requirements for the school. The MSG Battalion would send a copy of the SAB to the Command where it would be administered, and the completed test would be returned to the school for scoring. For those individuals with low scores, the MSG Battalion would carefully consider all available information, including individual SAB scale scores, to determine whether to accept the applicant into the school.



SAB Scores

Figure 7. Distribution of SAB Composite Scores With Pass/Fail for MSGs

Similar analyses were performed to determine which variables to use in screening Detachment Commanders. It is evident from Figures 5 and 6 that Detachment Commander applicants who were 20 or older at the time they entered the Marine Corps, or who had obtained a PFT score of 165 or less, have a greater likelihood of failing the Screening Board evaluation. This information may be readily obtained from personnel records.

The SAB was also studied to determine whether it would be of use in screening Detachment Commander applicants. Composite scores were calculated for Detachment Commander students who had SAB scores and a pass/fail indication. Figure 8 clearly indicates that students with a score of less than 98 on the SAB have a much poorer chance of passing MSG school. Only 43 percent of those scoring in the lowest 10 percent of the SAB distribution passed the MSG

school as compared to between 74 percent and 85 percent of individuals in the higher SAB score categories. Accordingly, it would be desirable to use the SAB in conjunction with the other screening measures for Detachment Commander applicants in the manner described earlier for MSG applicants.

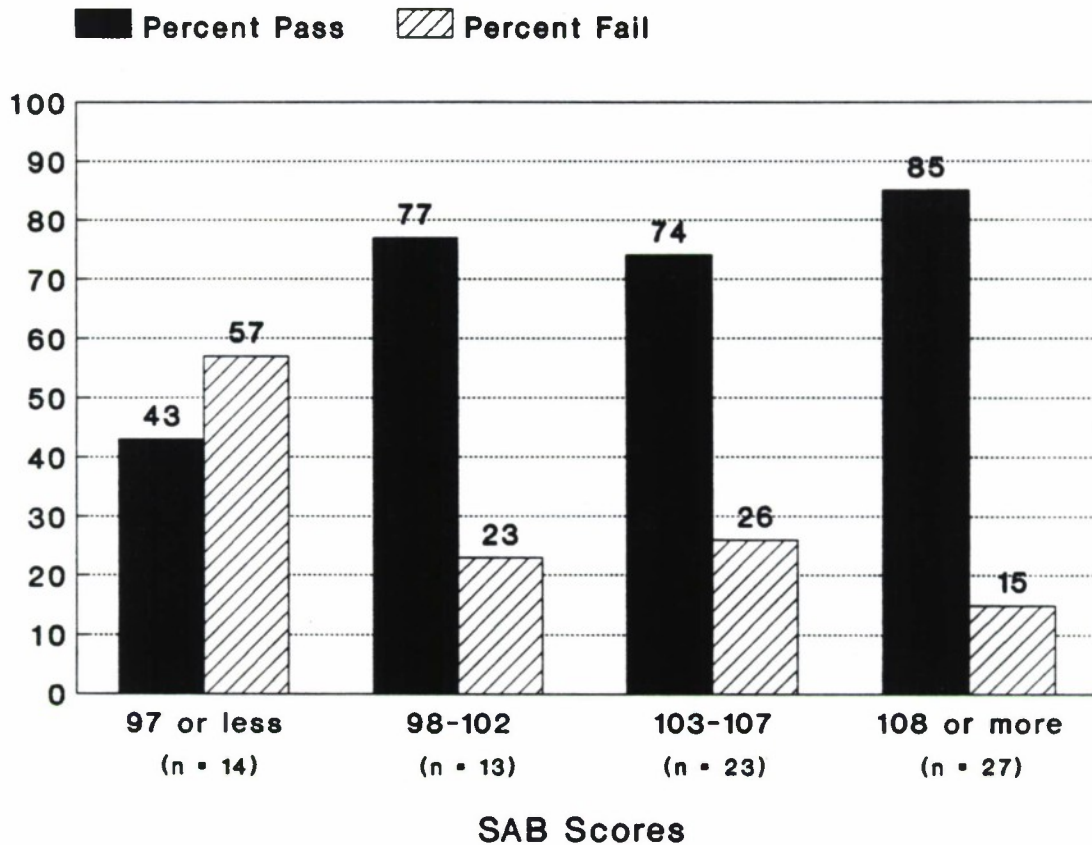


Figure 8. Distribution of SAB Composite Scores With MSG School Pass/Fail for Detachment Commanders

The final consideration, with respect to the use of these measures in screening applicants, is their impact on attrition at MSG school. To reiterate, cutoff scores were set at the point where approximately 50 percent of the individuals not meeting the cutoff would have failed MSG school. For the data from this study, if the cutoff scores for GT, PFT, SAB, and total indebtedness had been used, the attrition rate for MSGs (i.e., the number of MSGs who failed the program divided by the number who entered the program) would have been reduced from 27.3 percent to 12.9 percent. Thus, the attrition rate would have been reduced by 14.4 percentage points. An alternative way of looking at the reduction in attrition is to examine the expected percent reduction in the number of MSGs who would have failed the program. By

adhering to the cutoffs for these variables, the number of MSGs who failed the program would have decreased by 42.6 percent.

Considered separately, the following percentages of individuals would have been eliminated by using the cutoff scores for each of the measures: (1) 2.9 percent for the GT 90 cut; (2) 5.9 percent for PFT below 170; (3) 10.4 percent for the SAB cut; and (4) 3.6 percent for indebtedness of more than \$11,000. While these figures add up to 22.8 percent, the overlap among variables would result in a combined rejection rate of 20.6 percent. It should be remembered that those individuals who would be rejected only have a 50 percent chance of passing the school.

Performing the same analyses for Detachment Commanders, it was found that, if the cutoff scores for PFT, SAB, and age at entry into the Marine Corps had been used, the attrition rate would have been reduced from 34.4 percent to 7.1 percent. This projection must be treated with extreme caution, due to the small number of Detachment Commanders in the sample. Given the limited number of SNCO applicants, the cut scores should be used as a means of identifying those who require more careful screening, rather than as a set of criteria for automatic rejection or acceptance.

Selecting Students for MSG Duty

Eight instruments were examined in this study to determine their usefulness in selecting students for MSG duty. Prior to recommending any of these instruments for operational use, it is first necessary to weigh the evidence for validity presented earlier and consider how the predictors will be used operationally.

Based on earlier findings from this research program, the MSG Battalion initiated the use of the LEQ in 1988 to assist the Screening Board in making recommendations regarding MSGs and Detachment Commanders (Parker et al., 1989). The present findings support the continued use of the LEQ for selecting MSGs and Detachment Commanders. They also indicate that a combination of the LEQ and ABLE would significantly improve prediction of school and job performance. In fact, the ABLE contains important constructs that are not captured by the LEQ (e.g., Work Orientation and Energy Level). Although several other instruments contained scales which were valid predictors of school and job performance, the results of the stepwise procedures indicate that the marginal gain in predictive power resulting from their use would be outweighed by cost and convenience considerations.

In considering how any of the instruments included in this study might be employed operationally, it is important to stipulate the two types of processes that would utilize the data from these predictors. These are: (1) actuarial prediction of MSG performance; and (2) clinical judgments regarding any behavioral or adjustment

problems that may have a negative impact on MSG performance. Each of these processes has its place, and both are important in the context of selecting students for MSG duty.

Currently, the LEQ is being used both to predict performance and to provide a basis for clinical judgment. Prediction of performance is based on an overall score, the Total Adjustment Scale, that is used to calculate each student's probability of passing the Screening Board. For each student, this probability value is given on the first page of his or her LEQ Scoring Report, along with a profile graph of sten scores for each of the LEQ scales. The second page of the scoring report provides information on potential difficulties for the student in several general categories (e.g., legal troubles, alcohol problems). The profile of sten scores, plus the information from the second page of the scoring report, provide valuable information for clinical judgment.

The ABLE could be employed in a similar fashion to that described above for the LEQ. A composite score, derived from the most predictive six scales (Emotional Stability, Cooperativeness, Conscientiousness, Nondelinquency, Work Orientation, and Energy Level) has been developed as an overall predictor of MSG job performance to complement the LEQ prediction of school performance using the Total Adjustment Scale. This composite shows a significant relationship to Detachment Commander ratings of MSGs ($r = .29^a$, $p < .01$). In addition, those MSGs scoring in the lowest 15 percent of the ABLE composite are twice as likely to be in the lowest 10 percent of Detachment Commander ratings as are those who score above the 15th percentile on ABLE (i.e., 17 percent of low ABLE scorers versus 8.5 percent of those scoring higher). Thus, this composite measure could provide a useful estimate for an individual's probability of success in MSG duty.

In addition, a profile of ABLE scale scores could be of clinical value in differentiating between individuals who appear to be well adjusted and ready for MSG duty and those who may need to be examined more closely prior to making a recommendation. By applying the same judgment process to data from two different sources (i.e., LEQ and ABLE), there would clearly be an opportunity to obtain a more complete picture of the individual student.

In considering how these instruments may be utilized in making clinical judgments regarding candidates for MSG duty, it is interesting to note that a number of different temperament and biographical constructs were represented in the eight instruments examined in this study. Many of these constructs were found to be valid

^aCorrelation coefficient has been corrected for range restriction and criterion unreliability.

predictors of performance in MSG school as well as on the job. Several instruments contain identically titled constructs, among which are Conscientiousness, Cooperativeness, Dominance, Nondelinquency, Stable, and Traditional Values. Although each instrument uses somewhat different items to measure these constructs, the content tends to be very similar for the different instruments. An important consideration, then, is whether or not these constructs show a consistent relationship to criteria across instruments.

Tables 42 and 43 present correlations between these constructs, as measured by different instruments, and the two sets of criterion measures for MSGs. For the MSG school criteria (Table 42), Conscientiousness and Dominance show a very consistent pattern of correlations across instruments. The pattern of relationships is somewhat less consistent for Cooperativeness, Nondelinquency, and Stable, with the ABLE being the better predictor for the latter two. There is no consistency for Traditional Values; the ABLE scale is clearly the best predictor of the criteria.

For the correlations with job performance criteria (Table 43), Conscientiousness, Dominance, Nondelinquency, Stable, and Traditional Values all show consistent patterns across instruments. However, the pattern for Dominance is that of consistently low correlations for both instruments with almost all criteria. In comparing the two tables, Conscientiousness is clearly the most consistently powerful predictor across instruments and criterion measures. Sherman (1978) also found that the Conscientiousness scale of the 16PF discriminated between successful and unsuccessful MSG candidates.

To conclude the examination of the value of individual scales in making clinical judgments, the zero order correlations for all of the instruments were examined to determine which scales seem to best distinguish successful MSGs from unsuccessful ones. This examination revealed that the successful MSG exhibits the following characteristics: (1) conscientiousness; (2) cooperativeness; (3) high energy; (4) nondelinquency; (5) organization; (6) stability/adjustment; (7) traditional values; and (8) work orientation.

Table 42
Correlations of Selected Constructs with MSG School Criteria for MSGs

CONSTRUCT	INSTRUMENT	PASS/ FAIL	FINAL SCORE	PEER RATINGS					RATINGS TOTAL
				PROFESSIONALISM	MILITARY BEARING	DRINKING LIBERTY	OVERALL MOTIVATION		
CONSCIENTIOUSNESS	LEQ	.16**	.18**	.14*	.18**	.08	.19**	.14**	
	ABLE	.17**	.05	.13**	.16**	.16**	.16**	.16**	
	16PF	.16**	.06	.06	.13**	.07*	.13**	.11**	
COOPERATIVENESS	LEQ	.17**	.18**	.11	.15*	.02	.14*	.13*	
	ABLE	.17**	.08	.18**	.12*	.09	.18**	.17**	
DOMINANCE	SAB	.12**	.10**	.10**	.21**	.03	.22**	.15**	
	ABLE	.19**	.04	.18**	.20**	.09	.25**	.20**	
NONDELINQUENCY	SAB ^a	-.05	.01	-.05	-.09*	-.19**	-.06	-.10**	
	ABLE	.15**	-.10*	.17**	.15**	.15**	.17**	.17**	
STABLE	SAB	.13**	.12**	.07	.06	.06	.09*	.08*	
	ABLE	.22**	.08	.14**	.14**	.11**	.20**	.17**	
TRADITIONAL VALUES	LEQ	.17**	.03	.16	.13	.12	.20*	.16	
	ABLE	.20**	-.02	.10*	.10*	.03	.13**	.09	
	APOI	-.02	.04	.01	-.03	-.08	.00	-.04	

* $p < .05$

** $p < .01$

Note: Correlation coefficients have been corrected for range restriction and criterion unreliability.

^a High scores for this scale indicate delinquent behavior converse to the scoring of the ABLE scale.

Table 43

**Corrected Correlations of Selected Constructs with Detachment
Commander Ratings of MSG Job Performance**

<u>CONSTRUCT</u>	<u>INSTRUMENT</u>	<u>DETACHMENT COMMANDER RATINGS</u>				
		<u>CORE DUTIES</u>	<u>INTERPERSONAL</u>	<u>OVERALL EFFORT</u>	<u>SELF- DISCIPLINE</u>	<u>TOTAL COMPOSITE</u>
CONSCIENTIOUSNESS	ABLE	.19**	.18**	.30**	.28**	.26**
	16PF	.17**	.15**	.25**	.17**	.22**
DOMINANCE	SAB	.02	-.04	.00	-.12**	-.03
	ABLE	.02	.02	.06	-.04	.03
NONDELINQUENCY	SAB ^a	-.11**	-.05	-.18**	-.20**	-.15**
	ABLE	.14**	.20**	.20**	.25**	.21**
STABLE	SAB	.16**	.12**	.08	.13**	.15**
	ABLE	.13**	.17**	.12**	.11*	.14**
TRADITIONAL VALUES	ABLE	.07	.16**	.12**	.19**	.13**
	APOI	.01	.17**	.16**	.13**	.12**

* $p < .05$ ** $p < .01$

Note: Correlation coefficients have been corrected for range restriction and criterion unreliability.

^a High scores for this scale indicate delinquent behavior converse to the scoring of the ABLE scale.

It is apparent from the results of this study that the combination of LEQ and ABLE would provide ample coverage of most of the valid constructs examined. However, it must be remembered that the stepwise procedures, which yielded evidence for the predictive power and sufficiency of these two instruments, focused solely on psychological instruments and did not include the peer ratings from MSG school. There are two reasons why the peer ratings should continue to be used by the Screening Board, in addition to the LEQ and ABLE. First, there is strong evidence for their validity in predicting MSG duty performance. Secondly, it is essential for the Board to consider the observations of other individuals regarding the student's behavior, especially since all of the data from the psychological instruments are based on self report.

A final set of analyses was conducted to determine how well the LEQ, ABLE, and peer ratings, when combined, would predict success in MSG school and at MSG duty. For the former, a discriminant function analysis was conducted, using the Total Adjustment scale from the LEQ, the composite of six scales from the ABLE, and the peer ratings total to predict pass/fail status. A canonical correlation of .44 was obtained for this model. The issue of successful MSG duty was addressed by a regression analysis using the same three measures to predict the total composite for MSG job performance ratings by Detachment Commanders. A multiple correlation of .38^a was obtained for this model.

It is clear from these results that these three measures would provide accurate predictions of MSG performance. In addition to predicting performance, the individual scales of the LEQ and ABLE yield information that may form the basis for sound clinical judgment.

^aValidity coefficients were corrected for range restriction and criterion unreliability in the regression analysis.

RECOMMENDATIONS

This extensive program to evaluate tests and procedures for use in Marine Security Guard screening and selection has been very successful. The recommendations below, once adopted, will result in an enhanced capability for the MSG Battalion to improve the quality of MSGs and Detachment Commanders in the program.

1. The following measures should be used to screen MSG applicants prior to entry at the MSG school:
 - a. A minimum derived GT score of 90 on the ASVAB. This is a current eligibility requirement but it has been waived in the past.
 - b. A minimum PFT score of 170.
 - c. Financial obligations of less than \$11,000.
 - d. A minimum SAB score of 87.
 - e. Consideration of the pattern of SAB scale scores in making decisions on borderline applicants.
2. The following measures should be used to screen Detachment Commander applicants prior to entry at the MSG school:
 - a. A minimum PFT score of 166.
 - b. A minimum SAB score of 98.
 - c. More careful screening of those who entered the Marine Corps at age 20 or older.
 - d. Consideration of the pattern of SAB scale scores in making decisions on borderline applicants.
3. Selection of students for MSG duty should include:
 - a. Continuation of present procedures of administering, scoring, and interpreting the LEQ (Parker et al., 1989).
 - b. Adoption of similar procedures for administering, scoring, and interpreting the ABLE, as described in the body of this report.
 - c. Use of the peer ratings total.
4. The LEQ and ABLE should be used in assigning MSGs and Detachment Commanders. For both of these instruments, a composite score is available that generates an indication of probability of success in the program. Individuals with low probability of success should not be sent to high threat posts or where the risks of targeting or espionage are the greatest. In

addition, the profiles of scale scores on the LEQ and ABLE should be clinically interpreted and factored into the assignment decision.

5. The screening and selection program should be monitored closely once implemented to make adjustments based on future personnel requirements, manpower supply, the international situation, etc. Concurrent with the present program, research is under way to develop a continuing evaluation (CVAL) system for the monitoring of MSG performance and behavior in the field. The most parsimonious monitoring procedure would be to evaluate the quality of screening/selection decisions against the data obtained through the CVAL program.

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APPENDIX A

CORRECTED CORRELATIONS OF PREDICTOR SCORES WITH PEER RATINGS OF MSG JOB PERFORMANCE

Table A-1

Corrected Correlations of LEQ Scales with Peer Ratings
of MSG Job Performance

<u>LEQ SCALES</u>	<u>PEER RATINGS</u>			
	<u>CORE DUTIES</u>	<u>PERSONAL QUALITIES</u>	<u>SELF- DISCIPLINE</u>	<u>TOTAL COMPOSITE</u>
H.S. Academics	.11	.10	.15*	.12
H.S. Adjustment	.01	-.03	.03	.00
H.S. Sociability	.38**	.37**	.21*	.36**
Conscientiousness	.08	.04	.03	.06
Cooperativeness	.12	.23*	.08	.16
Legal/Alcohol Trouble	.03	.03	.10	.05
Parker-Fitz	.13	.10	.08	.11
Sherman Critical	.12	.07	.08	.10
Total Adjustment	.14	.13	.05	.13

* $p < .05$

** $p < .01$

Note: Sample size ranges from 112 to 227. This variability affects tests for significance of correlation coefficients. Correlation coefficients have been corrected for range restriction and criterion unreliability.

Table A-2

Corrected Correlations of SAB Scales with Peer Ratings of MSG Job Performance

<u>SAB SCALES</u>	<u>PEER RATINGS</u>			
	<u>CORE DUTIES</u>	<u>PERSONAL QUALITIES</u>	<u>SELF-DISCIPLINE</u>	<u>TOTAL COMPOSITE</u>
C1 Dominance	.05	.01	-.02	.02
C2 Well Being	.09*	.14**	.10**	.12**
C3 Good Natured	.05	.08*	.09*	.08*
C4 Exhibitionism	-.01	-.01	-.08*	-.03
C5 Organization	.08*	.05	.16**	.09*
C6 Age	.14**	.08*	.08*	.11**
C7 Extroversion	.00	.05	-.04	.01
C8 Methodical	.04	-.01	.01	.02
C9 Religious/Abstention	-.04	-.01	.12	.01
C10 Even Tempered	.07	.11**	.07	.09*
C11 Hard Working	.08*	.04	.07*	.07
C12 Cautious	.06	.06	.17**	.09
C13 Marriage	-.03	.00	-.03	-.02
C14 Stable	.09*	.10*	.12**	.10**
C15 Spontaneity	-.03	.02	-.06	-.02
C16 Delinquency	-.02	-.04	-.22**	-.07

* $p < .05$ ** $p < .01$

Note: Sample size ranges from 729 to 741. Correlation coefficients have been corrected for range restriction and criterion unreliability.

Table A-3

Corrected Correlations of ABLE Scales with Peer Ratings of MSG Job Performance

<u>ABLE SCALES</u>	<u>PEER RATINGS</u>			
	<u>CORE DUTIES</u>	<u>PERSONAL QUALITIES</u>	<u>SELF- DISCIPLINE</u>	<u>TOTAL COMPOSITE</u>
SUBSTANTIVE SCALES				
Emotional Stability	.10*	.11*	.10*	.11**
Self Esteem	.10**	.07*	.08*	.09*
Cooperativeness	.07	.14**	.13**	.12**
Conscientiousness	.07	.00	.17**	.07
Nondelinquency	.06	.04	.14**	.07
Traditional Values	.07	.05	.13**	.08*
Work Orientation	.14**	.05	.09*	.10**
Internal Control	.08*	.04	.00	.05
Energy Level	.13**	.10**	.09*	.12**
Dominance	.11**	.08*	.04	.09*
Physical Condition	-.01	.00	.05	.01
VALIDITY SCALES				
Social Desirability	.00	-.02	.06	.01
Self-Knowledge	.01	-.03	.02	.00
Random Response	-.02	.00	.02	.00
Poor Impression	-.04	-.05	-.02	-.04

* $p < .05$ ** $p < .01$ Note: Sample size is 705. Correlation coefficients have been corrected for range restriction and criterion unreliability.

Table A-4

**Corrected Correlations of 16PF Scales with Peer Ratings of MSG
Job Performance**

<u>16PF SCALES</u>	<u>PEER RATINGS</u>			
	<u>CORE DUTIES</u>	<u>PERSONAL QUALITIES</u>	<u>SELF-DISCIPLINE</u>	<u>TOTAL COMPOSITE</u>
PRIMARY FACTORS				
A Warm	.07	.04	.08*	.07
B Intelligent	-.01	-.04	-.05	-.03
C Emotionally Stable	.12**	.12**	.06	.11**
E Assertive	.01	-.04	-.09*	-.03
F Enthusiastic	.07*	.10**	.02	.08*
G Conscientious	.15**	.12**	.18**	.15**
H Bold	.05	.04	-.02	.03
I Tender-minded	.01	.05	.09*	.04
L Suspicious	-.08*	-.08*	-.08*	-.08*
M Imaginative	.01	.00	-.02	.00
N Shrewd	-.01	.00	.03	.00
O Apprehensive	-.12**	-.14**	-.06	-.13**
Q1 Experimenting	.02	-.01	.01	.01
Q2 Self-Sufficient	-.08*	-.10**	-.10**	-.10**
Q3 Controlled	.11**	.09*	.10**	.11**
Q4 Tense	-.10**	-.12**	-.13**	-.12**
SECOND-ORDER FACTORS				
QI Extroversion	.10**	.09*	.06	.10*
QII Anxiety	-.13**	-.14**	-.13**	-.14**
QIII Tough Poise	-.02	-.03	-.08*	-.04
QIV Independence	.01	-.02	-.10**	-.03

* $p < .05$

** $p < .01$

Note: Sample size is 724. Correlation coefficients have been corrected for range restriction and criterion unreliability.

Table A-5

**Corrected Correlations of 16PF Composites with Peer Ratings of
MSG Job Performance**

<u>16PF COMPOSITE SCALES</u>	<u>PEER RATINGS</u>			
	<u>CORE DUTIES</u>	<u>PERSONAL QUALITIES</u>	<u>SELF-DISCIPLINE</u>	<u>TOTAL COMPOSITE</u>
OCCUPATIONAL SCALES				
Police 1	-.04	-.04	-.03	-.04
Freedom from Accidents	.16**	.16**	.18**	.17**
Psychological Technician	.15**	.16**	.14**	.16**
Counselor	.07	.01	-.03	.03
Football Player	.06	.05	-.01	.04
Police 2	.05	-.02	-.02	.01
Janitor	-.07	-.07*	-.13**	-.09*
Alcoholic	-.14**	-.15**	-.09*	-.14**
Criminal	-.14**	-.15**	-.11**	-.15**
NUCLEAR REGULATORY AGENCY SCALES				
Decision	.12**	.11**	.11**	.12**
Decision Rank	.10*	.08*	.08*	.09*
Decision Model Index	.16**	.15**	.11**	.15**
MSG STUDY SCALES				
MSG Field Performance	.17**	.16**	.14**	.17**
MSG School Performance	.11**	.10*	.10**	.11**
SELECTED COMPOSITE SCALES				
Control	.14**	.12**	.17**	.15**
Depression	-.16**	-.14**	-.08*	-.14**
Psychoticism	-.08*	-.13**	-.09*	-.11**
Neuroticism	-.05	-.05	.02	-.04
Leadership	.16**	.15**	.09*	.15**
Accident Proneness	-.14**	-.14**	-.17**	-.16**
Integration	-.06	-.04	-.01	-.05
Interest	.04	.04	-.01	.03
Conflict	-.05	-.03	-.07	-.05

* $p < .05$ ** $p < .01$

Note: Sample size ranges from 672 to 724. This variability affects tests for significance of correlation coefficients. Correlation coefficients have been corrected for range restriction and criterion unreliability.

Table A-6

Corrected Correlations of CAQ Scales with Peer Ratings of MSG Job Performance

<u>CAQ SCALES</u>	<u>PEER RATINGS</u>			
	<u>CORE DUTIES</u>	<u>PERSONAL QUALITIES</u>	<u>SELF-DISCIPLINE</u>	<u>TOTAL COMPOSITE</u>
Hypochondriasis	-.09*	-.09*	-.06	-.09*
Suicidal Depression	-.14**	-.09*	-.10*	-.12**
Agitation	.00	-.03	-.08*	-.03
Anxious Depression	-.10*	-.05	-.09*	-.08*
Low Energy Depression	-.16**	-.11**	-.05	-.13**
Guilt/Resentment	-.08*	-.07	-.10*	-.09*
Bored Depression	-.08*	-.13**	-.07	-.10**
Paranoia	-.09*	-.10*	-.04	-.09*
Psychopathic Deviation	.06	.04	.00	.04
Schizophrenia	-.10**	-.13**	-.11**	-.12**
Psychasthenia	-.02	-.03	-.02	-.03
Psychological Inadequacy	-.15**	-.14**	-.08*	-.14**
Faking Good	.09*	.08*	.13**	.10**

* $p < .05$ ** $p < .01$ Note: Sample size is 675. Correlation coefficients have been corrected for range restriction and criterion unreliability.

Table A-7

Corrected Correlations of APOI Scales with Peer Ratings of
MSG Job Performance

<u>APOI SCALES</u>	<u>PEER RATINGS</u>			
	<u>CORE DUTIES</u>	<u>PERSONAL QUALITIES</u>	<u>SELF- DISCIPLINE</u>	<u>TOTAL COMPOSITE</u>
Ego Development	.04	-.01	.00	.01
Sociability	.04	.06	.00	.04
Resiliency/Energy	.03	.05	.00	.03
Adventure./Modernity	.07	.07	.04	.07
Intellectual Curiosity	.00	-.01	-.03	-.01
Traditional Values	.04	-.03	.03	.01
Support	.02	.09*	.07	.06

* $p < .05$

Note: Sample size is 621. Correlation coefficients have been corrected for range restriction and criterion unreliability.

Table A-8

Corrected Correlations of SEI Scales with Peer Ratings of MSG Job Performance

<u>SEI SCALES</u>	<u>PEER RATINGS</u>			
	<u>CORE DUTIES</u>	<u>PERSONAL QUALITIES</u>	<u>SELF-DISCIPLINE</u>	<u>TOTAL COMPOSITE</u>
Career Stress	-.09*	-.10**	-.11**	-.11**
Family Stress	-.03	-.05	-.07	-.05
Personal Stress	-.10*	-.12**	-.08*	-.11**
Total Stress	-.09*	-.11**	-.10*	-.11**

* $p < .05$

** $p < .01$

Note: Sample size is 675. Correlation coefficients have been corrected for range restriction and criterion unreliability.

APPENDIX B

CORRELATIONS OF PREDICTOR SCORES WITH RATINGS OF MSG JOB PERFORMANCE

Table B-1

Correlations of LEQ Scales with Ratings of MSG Job Performance

	PEER RATINGS				DETACHMENT COMMANDER RATINGS				
	CORE DUTIES	PERSONAL QUALITIES	SELF-DISCIPLINE	TOTAL COMPOSITE	CORE DUTIES	INTER-PERSONAL	OVERALL EFFORT	SELF-DISCIPLINE	TOTAL COMPOSITE
H.S. Academics	.09	.08	.12	.10	.06	.11	.12	.16*	.12
H.S. Adjustment	.01	-.02	.03	.00	.16	.10	.13	.07	.14
H.S. Sociability	.29**	.29**	.16	.28**	.07	-.01	.01	-.06	.03
Conscientiousness	.06	.03	.02	.05	.04	.11	.05	.06	.08
Cooperativeness	.09	.18*	.06	.13	.13	.22	.10	.11	.16
Legal/Alcohol	.03	.02	.08	.04	-.11	-.10	-.06	-.05	-.11
Parker-Fitz	.10	.08	.06	.09	.07	.13	.15	.13	.12
Sherman Critical	.09	.05	.06	.08	.12	.15	.16	.14	.15
Total Adjustment	.10	.10	.04	.09	.20	.20	.16	.07	.20

* $p < .05$ ** $p < .01$

Note: Sample size ranges from 112 to 229 for Peer Ratings, 60 to 151 for Detachment Commanders Ratings. This variability affects tests for significance of correlation coefficients. Correlation coefficients have been corrected for range restriction and criterion unreliability.

Table B-2

Correlations of SAB Scales with Ratings of MSG Job Performance

SAB SCALES	PEER RATINGS				DETACHMENT COMMANDER RATINGS				
	CORE DUTIES	PERSONAL QUALITIES	SELF-DISCIPLINE	TOTAL COMPOSITE	CORE DUTIES	INTERPERSONAL	OVERALL EFFORT	SELF-DISCIPLINE	TOTAL COMPOSITE
C1 Dominance	.05	.01	-.01	.02	.01	-.03	.00	-.09*	-.03
C2 Well Being	.08*	.12**	.08*	.10**	.07	.09*	.06	.03	.07
C3 Good Natured	.05	.07	.08*	.07	.02	.15**	.02	.08	.07
C4 Exhibitionism	-.01	-.01	-.07	-.02	-.06	-.05	-.05	-.13**	-.09*
C5 Organization	.07*	.04	.13**	.08*	.08	.08	.15**	.09*	.11**
C6 Age	.11**	.07	.06	.09*	.09*	.09*	.08	.10*	.11*
C7 Extroversion	.00	.05	-.04	.01	.02	.03	-.03	-.09*	-.02
C8 Methodical	.04	-.01	.01	.01	.07	.03	.02	.06	.05
C9 Religious/Abstention	-.04	-.01	.12**	.01	-.04	.04	.06	.12*	.04
C10 Even Tempered	.06	.09*	.06	.08*	.04	.09*	.05	.03	.06
C11 Hard Working	.07	.03	.06	.06	.07	.03	.11*	.05	.07
C12 Cautious	.05	.05	.15**	.08*	.00	.03	.06	.10*	.05
C13 Marriage	-.03	.00	-.02	-.01	.04	-.01	.04	.03	.03
C14 Stable	.07	.08*	.10**	.08*	.12**	.09*	.06	.10*	.11*
C15 Spontaneity	-.02	.01	-.05	-.02	-.08	-.04	-.07	-.09*	-.08**
C16 Delinquency	-.01	-.03	-.18**	-.06	-.09*	-.04	-.14**	-.15**	-.11**

* $p < .05$ ** $p < .01$

Note: Sample size ranges from 548 to 739. This variability affects tests for significance of correlation coefficients. Correlation coefficients have been corrected for range restriction and criterion unreliability.

Table B-3

Correlations of ABLE Scales with Ratings of MSG Job Performance

	PEER RATINGS				DETACHMENT COMMANDER RATINGS				
	CORE DUTIES	PERSONAL QUALITIES	SELF-DISCIPLINE	TOTAL COMPOSITE	CORE DUTIES	INTERPERSONAL	OVERALL EFFORT	SELF-DISCIPLINE	TOTAL COMPOSITE
ABLE SCALES									
SUBSTANTIVE SCALES									
Emotional Stability	.08*	.09*	.08*	.09*	.10*	.12**	.09*	.08	.11*
Self Esteem	.09*	.06	.07	.08*	.03	.01	.05	-.01	.02
Cooperativeness	.06	.12**	.11**	.10**	.13**	.23**	.16**	.17**	.18**
Conscientiousness	.06	.00	.15**	.06	.14**	.14**	.23**	.21**	.20**
Nondelinquency	.05	.03	.11**	.06	.11*	.15**	.15**	.19**	.16**
Traditional Values	.06	.04	.10**	.06	.05	.12**	.09*	.14**	.10*
Work Orientation	.12**	.04	.08*	.09*	.12**	.11*	.20**	.11*	.15**
Internal Control	.07	.04	.00	.04	.05	.07	.08	.03	.06
Energy Level	.11**	.09*	.08*	.10**	.13**	.09*	.17**	.08	.14**
Dominance	.09*	.07	.04	.08*	.02	.02	.05	-.03	.02
Physical Condition	-.01	.00	.04	.01	.03	.05	.09*	-.02	.05
VALIDITY SCALES									
Social Desirability	.00	-.02	.03	.00	.11*	.09*	.14**	.13**	.13**
Self-Knowledge	.00	-.02	.02	.00	-.02	-.02	.04	.02	.01
Random Response	-.01	.00	.02	.00	.00	.00	-.02	.01	.00
Poor Impression	-.03	-.04	-.01	-.03	.00	-.04	.00	.01	-.01

* $p < .05$ ** $p < .01$

Note: Sample size ranges from 536 to 707. This variability affects tests for significance of correlation coefficients. Correlation coefficients have been corrected for range restriction and criterion unreliability.

Table B-4

Correlations of 16PF Scales with Ratings of MSG Job Performance

16PF SCALES	PEER RATINGS				DETACHMENT COMMANDER RATINGS				
	CORE DUTIES	PERSONAL QUALITIES	SELF-DISCIPLINE	TOTAL COMPOSITE	CORE DUTIES	INTER-PERSONAL	OVERALL EFFORT	SELF-DISCIPLINE	TOTAL COMPOSITE
Primary Factors									
A Warm	.06	.03	.07	.06	-.02	-.06	-.01	-.08	-.04
B Intelligent	-.01	-.03	-.04	-.03	.03	.04	.01	.00	.03
C Emotionally Stable	.10**	.10**	.05	.10**	.08	.07	.01	.02	.04
E Assertive	.01	-.03	-.08*	-.03	.06	-.02	.04	-.07	.01
F Enthusiastic	.06	.08*	.01	.06	.10*	.07	.10*	-.03	.07
G Conscientious	.12**	.10**	.15**	.13**	.13**	.11**	.19**	.13**	.17**
H Bold	.04	.03	-.02	.03	.11*	.06	.08	-.03	.07
I Tender-minded	.00	.04	.08*	.04	-.01	.00	-.03	.01	-.01
L Suspicious	-.06	-.06	-.07	-.07	-.05	-.08	.00	-.06	-.05
M Imaginative	.01	.00	-.02	.00	.00	-.03	-.04	-.01	-.02
N Shrewd	-.01	.00	.02	.00	-.02	.04	-.02	.00	.00
O Apprehensive	-.10**	-.12**	-.05	-.10**	-.10*	-.09*	-.05	-.04	-.09*
Q1 Experimenting	.02	-.01	.01	.00	-.02	-.06	-.01	.00	-.03
Q2 Self-Sufficient	-.07	-.08*	-.09*	-.08*	-.11*	-.10*	-.08*	.00	-.09*
Q3 Controlled	.09*	.08*	.09*	.09*	.09*	.11**	.08	.08	.10*
Q4 Tense	-.09*	-.10**	-.11**	-.10**	-.12**	-.13**	-.09*	-.12**	-.12**
Second-Order Factors									
QI Extroversion	.09*	.08*	.05	.08*	.12**	.07	.10*	-.04	.08
QII Anxiety	-.11**	-.12**	-.11**	-.12**	-.14**	-.14**	-.06	-.10*	-.12**
QIII Tough Poise	-.02	-.02	-.07	-.03	.04	.06	.05	.01	.04
QIV Independence	.01	-.02	-.09*	-.03	.04	-.03	.02	-.08	-.01

* $p < .05$ ** $p < .01$

Note: Sample size ranges from 550 to 724. This variability affects tests for significance of correlation coefficients. Correlation coefficients have been corrected for range restriction and criterion unreliability.

Table B-5

Correlations of 16PF Composites with Ratings of MSG Job Performance

16PF COMPOSITE SCALES	PEER RATINGS			DETACHMENT COMMANDER RATINGS					
	CORE DUTIES	PERSONAL QUALITIES	SELF-DISCIPLINE	TOTAL COMPOSITE	CORE DUTIES	INTERPERSONAL	OVERALL EFFORT	SELF-DISCIPLINE	TOTAL COMPOSITE
OCCUPATIONAL SCALES									
Police 1	-.03	-.03	-.02	-.03	-.02	.03	-.04	.10*	.01
Freedom from Accidents	.14**	.13**	.15**	.15**	.14**	.16**	.14**	.13**	.16**
Psychological Technician	.13**	.13**	.12**	.14**	.13**	.14**	.11**	.07	.13**
Counselor	.06	.01	-.03	.02	.07	-.01	.06	-.06	.03
Football Player	.05	.04	-.01	.03	.05	-.02	.06	-.07	.01
Police 2	.04	-.02	-.02	.01	.02	-.03	.00	-.04	-.01
Janitor	-.06	-.06	-.10**	-.07	-.07	-.06	-.12**	-.11*	-.10*
Alcoholic	-.12**	-.13**	-.07	-.12**	-.17**	-.16**	-.12**	-.07	-.14**
Criminal	-.12**	-.13**	-.09*	-.12**	-.16**	-.17**	-.13**	-.10**	-.15**
NUCLEAR REGULATORY AGENCY SCALES									
Decision	.10**	.09*	.09*	.10*	.03	.09*	.03	.03	.04
Decision Rank	.08*	.07	.06	.08*	.14**	.15**	.13**	.09*	.14**
Decision Model Index	.14**	.12**	.09*	.13**	.20**	.22**	.20**	.12**	.21**
MSG STUDY SCALES									
MSG Field Performance	.14**	.13**	.12**	.14**	.16**	.15**	.14**	.09*	.16**
MSG School Performance	.10**	.08*	.08*	.09*	.06	.05	.08	.07	.08
SELECTED COMPOSITE SCALES									
Control	.12**	.10**	.15**	.13**	.13**	.14**	.17**	.15**	.17**
Depression	-.14**	-.12**	-.07	-.12**	-.15**	-.18**	-.17**	-.10*	-.18**
Psychoticism	-.07	-.11**	-.07	-.09*	-.15**	-.21**	-.17**	-.12**	-.19**
Neuroticism	-.04	-.04	.02	-.03	-.09*	-.02	-.03	.06	-.02
Leadership	.14**	.13**	.07	.13**	.18**	.17**	.16**	.05	.16**
Accident Proneness	-.12**	-.11**	-.14**	-.13**	-.12**	-.15**	-.13**	-.13**	-.15**
Integration	-.04	-.03	-.01	-.03	.01	.01	.02	-.05	.00
Interest	.03	.03	.00	.03	.01	.09*	.04	.09*	.06
Conflict	-.05	-.03	-.06	-.04	.00	.01	.01	.02	.01

* $p < .05$ ** $p < .01$

Note: Sample size ranges from 512 to 724. This variability affects tests for significance of correlation coefficients. Correlation coefficients have been corrected for range restriction and criterion unreliability.

Table B-6

Correlations of CAQ Scales with Ratings of MSG Job Performance

CAQ SCALES	PEER RATINGS				DETACHMENT COMMANDER RATINGS				
	CORE DUTIES	PERSONAL QUALITIES	SELF-DISCIPLINE	TOTAL COMPOSITE	CORE DUTIES	INTER-PERSONAL	OVERALL EFFORT	SELF-DISCIPLINE	TOTAL COMPOSITE
Hypochondriasis	-.07*	-.08*	-.05	-.08*	-.08	-.12**	-.12**	-.06	-.12**
Suicidal Depression	-.12**	-.08*	-.08*	-.10**	-.12**	-.16**	-.10*	-.09*	-.14**
Agitation	.00	-.03	-.07	-.03	.01	.02	-.01	-.04	.00
Anxious Depression	-.08*	-.04	-.08*	-.07	-.04	-.05	-.04	-.02	-.04
Low Energy Depression	-.14**	-.09*	-.05	-.11**	-.11**	-.11*	-.13**	-.08	-.13**
Guilt/Resentment	-.07	-.06	-.08*	-.07	-.14**	-.13**	-.08	-.14**	-.13**
Bored Depression	-.07	-.11**	-.06	-.09*	-.15**	-.14**	-.15**	-.05	-.15**
Paranoia	-.07	-.08*	-.03	-.07	-.09*	-.16**	-.10*	-.08	-.12**
Psychopathic Deviation	.06	.03	.00	.04	.04	.01	.00	-.01	.01
Schizophrenia	-.09*	-.11**	-.09*	-.10**	-.15**	-.18**	-.17**	-.13**	-.18**
Psychasthenia	-.02	-.03	-.02	-.02	-.08	-.12**	-.07	-.10*	-.10*
Psychological Inadequacy	-.12**	-.12**	-.06	-.12**	-.16**	-.16**	-.16**	-.09*	-.17**
Faking Good	.08*	.07	.11**	.08*	.12**	.11*	.10*	.12**	.13**

* $p < .05$ ** $p < .01$

Note: Sample size ranges from 512 to 675. This variability affects tests for significance of correlation coefficients. Correlation coefficients have been corrected for range restriction and criterion unreliability.

Table B-7

Correlations of APOI Scales with Ratings of MSG Job Performance

<u>APOI SCALES</u>	<u>PEER RATINGS</u>				<u>DETACHMENT COMMANDER RATINGS</u>				
	<u>CORE DUTIES</u>	<u>PERSONAL QUALITIES</u>	<u>SELF-DISCIPLINE</u>	<u>TOTAL COMPOSITE</u>	<u>CORE DUTIES</u>	<u>INTERPERSONAL</u>	<u>OVERALL EFFORT</u>	<u>SELF-DISCIPLINE</u>	<u>TOTAL COMPOSITE</u>
Ego Development	.04	-.01	.00	.01	-.05	-.04	.00	.03	-.02
Sociability	.03	.05	.00	.04	.07	.04	.03	-.03	.03
Resiliency/Energy	.03	.04	.00	.03	.06	.01	.04	.00	.02
Adventure/Modernity	.06	.06	.04	.06	.05	.02	.03	.00	.03
Intellectual Curiosity	.00	-.01	-.02	-.01	.05	.02	.04	.03	.04
Traditional Values	.03	-.02	.03	.01	.01	.13	.13	.10	.10
Support	.02	.08	.06	.05	.09	.12	.11	.05	.10*

* $p < .05$

Note: Sample size ranges from 483 to 621. This variability affects tests for significance of correlation coefficients. Correlation coefficients have been corrected for range restriction and criterion unreliability.

Table B-8

Correlations of SEI Scales with Ratings of MSG Job Performance

<u>SEI SCALES</u>	<u>PEER RATINGS</u>				<u>DETACHMENT COMMANDER RATINGS</u>				
	<u>CORE DUTIES</u>	<u>PERSONAL QUALITIES</u>	<u>SELF-DISCIPLINE</u>	<u>TOTAL COMPOSITE</u>	<u>CORE DUTIES</u>	<u>INTER-PERSONAL</u>	<u>OVERALL EFFORT</u>	<u>SELF-DISCIPLINE</u>	<u>TOTAL COMPOSITE</u>
Career Stress	-.08*	-.09*	-.09*	-.09*	-.06	-.14**	-.09*	-.07	-.11*
Family Stress	-.03	-.04	-.06	-.04	-.08	-.09*	-.11*	-.12**	-.11*
Personal Stress	-.08*	-.11**	-.06	-.10*	-.16**	-.16**	-.16**	-.11*	-.17**
Total Stress	-.08*	-.09*	-.08*	-.09*	-.13**	-.15**	-.13**	-.11*	-.15**

* $p < .05$ ** $p < .01$

Note: Sample size ranges from 512 to 675. This variability affects tests for significance of correlation coefficients. Correlation coefficients have been corrected for range restriction and criterion unreliability.

APPENDIX C

CORRELATIONS OF PREDICTOR SCORES WITH MSG SCHOOL CRITERIA FOR DETACHMENT COMMANDERS

Table C-1

Correlations of 16PF Scales with MSG School Criteria for Detachment Commanders

16PF SCALES		PASS/ FAIL	FINAL SCORE	PEER RATINGS				RATINGS TOTAL
				PROFESSIONALISM	MILITARY BEARING	DRINKING LIBERTY	OVERALL MOTIVATION	
PRIMARY FACTORS								
A	Warm	.00	.12	.01	-.01	-.01	-.03	-.01
B	Intelligent	.05	.14	.11	.11	.18	.12	.14
C	Emotionally Stable	.25*	.21	.05	.16	.14	.16	.13
E	Assertive	.11	.11	.35**	.15	.23	.47**	.37**
F	Enthusiastic	.20	.00	.01	-.09	-.09	-.09	-.06
G	Conscientious	.22*	.16	.22	.29*	.17	.25*	.27*
H	Bold	.17	.09	.03	.13	.13	.09	.09
I	Tender-minded	-.13	.07	-.25*	-.09	-.14	-.27*	-.24*
L	Suspicious	-.15	-.12	-.06	-.05	-.12	-.11	-.09
M	Imaginative	-.06	-.11	.03	.03	.36**	.09	.11
N	Shrewd	-.15	-.16	-.29*	-.21	-.35**	-.29*	-.32**
O	Apprehensive	-.23*	-.21	-.25*	-.20	-.36**	-.32**	-.31**
Q1	Experimenting	-.14	-.16	-.01	-.19	-.23	-.12	-.12
Q2	Self-Sufficient	-.26**	.06	.03	-.10	.01	.01	.00
Q3	Controlled	.28**	.19	.30*	.33**	.41**	.39**	.39**
Q4	Tense	-.23*	-.22	-.22	-.26*	-.24*	-.24*	-.27*
SECOND-ORDER FACTORS								
QI	Extraversion	.28**	.06	.04	.09	.03	.04	.05
QII	Anxiety	.26*	-.23	-.17	-.20	-.24*	-.24*	-.23*
QIII	Tough Poise	.18	.00	.11	.08	-.06	.17	.11
QIV	Independence	.05	.08	.25*	.09	.22	.32**	.27*

* $p < .05$ ** $p < .01$

Note: Sample size varies from 71 to 98. This variability affects tests for significance of correlation coefficients.

Table C-2

Correlations of 16PF Composites with MSG School Criteria for Detachment Commanders

16PF COMPOSITE SCALES	PASS FAIL	FINAL SCORE	PEER RATINGS				RATINGS TOTAL
			PROFESS- IONALISM	MILITARY BEARING	DRINKING LIBERTY	OVERALL MOTIVATION	
OCCUPATIONAL SCALES							
Police 1	-.01	.06	.11	.12	.21	.21	.18
Freedom from Accidents	.29**	.28*	.21	.28*	.18	.25*	.26*
Psychological Technician	.29**	.26*	.14	.26*	.20	.21	.21
Counselor	.24*	-.02	.22	.10	.15	.23	.22
Football Player	.17	.05	.09	.01	-.08	.18	.06
Police 2	.17	.16	.34**	.22	.32**	.49**	.40**
Janitor	-.03	-.02	-.08	.05	.27*	.05	.04
Alcoholic	-.36**	-.25*	-.27*	-.25*	-.24*	-.34**	-.32**
Criminal	-.37**	-.25*	-.27*	-.28*	-.23	-.37**	-.32**
NUCLEAR REGULATORY AGENCY SCALES							
Decision	.30*	^a					
Decision Rank	.36**	.28*	.36**	.32*	.37**	.40**	.41**
Decision Model Index	.37**	.22	.35*	.26	.39**	.36**	.38**
MSG STUDY SCALES							
MSG Field Performance	.30**	.17	.21	.29*	.31**	.29*	.30*
MSG School Performance	.13	.21	.09	.15	.05	.14	.13
SELECTED COMPOSITE SCALES							
Control	.30**	.21	.32*	.40**	.34*	.41**	.41**
Depression	-.25*	-.07	-.04	-.00	-.15	-.07	-.07
Psychoticism	-.29*	-.05	-.13	-.08	-.23	-.05	-.13
Neuroticism	-.07	-.21	-.29*	-.17	-.22	-.36*	-.31*
Leadership	.32**	.29*	.28	.26	.34*	.32*	.33*
Accident Proneness	-.24*	-.26	-.13	-.19	-.11	-.15	-.16
Integration	.09	.10	.13	.03	.18	.15	.14
Interest	-.07	-.18	-.09	-.20	-.26	-.16	-.18
Conflict	.04	.06	-.25	-.09	-.33*	-.26	-.26

* $p < .05$ ** $p < .01$

Note: Sample size varies from 71 to 98.

^aFor these variables there was no variance in response.

Table C-3

Correlations of MAT Scales with MSG School Criteria for Detachment Commanders

MAT SCALES	PASS/ FAIL	FINAL SCORE	PEER RATINGS					RATINGS TOTAL
			PROFESSIONALISM	MILITARY BEARING	DRINKING LIBERTY	OVERALL MOTIVATION		
UNINTEGRATED SCALES								
UCa Career	.04	.25*	.05	.04	.00	.04	.04	.04
UHo Dependency	.19	-.10	.13	.23	.26*	.11	.19	
UFr Security	-.16	-.07	-.05	-.15	-.12	-.12	-.11	
UNa Self-Indulgent	-.02	-.15	-.14	-.17	-.31**	-.18	-.21	
USE Responsibility	-.04	-.04	-.13	-.01	.02	-.12	-.09	
USS Self-Concept	.21*	.09	.18	.29*	.30**	.30**	.29*	
UMa Heterosexuality	-.06	-.11	-.09	-.34**	-.27*	-.16	-.21	
UPg Hostility	-.10	-.16	.01	-.11	-.13	-.06	-.06	
UAs Self-Assertion	.15	.00	.01	-.05	-.21	-.02	-.05	
USw Affection	-.17	.16	-.02	-.04	.06	-.01	-.01	
INTEGRATED SCALES								
ICa Career	-.01	-.12	-.01	-.07	-.10	-.05	-.05	
IHo Dependency	.19	-.11	.14	.11	.29*	.12	.17	
IFr Security	.01	-.03	.24*	.08	.11	.07	.16	
INa Self-Indulgent	-.05	-.12	.07	.13	.21	.04	.11	
ISe Responsibility	.17	-.11	-.13	.07	-.15	-.10	-.10	
ISs Self-Concept	-.08	.14	.00	-.05	-.08	.01	-.03	
IMa Heterosexuality	-.11	.02	-.20	-.34**	-.32**	-.17	-.27*	
IPg Hostility	-.12	.03	-.10	-.20	-.02	-.05	-.11	
IAs Self-Assertion	.02	.24*	-.07	-.11	-.16	.01	-.08	
ISw Affection	.29**	.13	.28*	.34**	.30*	.35**	.36**	

* $p < .05$ ** $p < .01$

Note: Sample size varies from 71 to 98. This variability affects tests for significance of correlation coefficients.

Table C-4

Correlations of CAQ Scales with MSG School Criteria for Detachment Commanders

CAQ SCALES	PASS/ FAIL	FINAL SCORE	PEER RATINGS					RATINGS TOTAL
			PROFESSIONALISM	MILITARY BEARING	DRINKING LIBERTY	OVERALL MOTIVATION		
Hypochondriasis	-.17	-.26	.05	.01	-.07	-.03	.00	
Suicidal Depression	-.18	.05	.04	.11	.09	.09	.08	
Agitation	-.08	.24	.09	.01	-.02	.12	.07	
Anxious Depression	-.08	-.01	-.06	-.04	-.06	.00	-.05	
Low Energy Depression	-.24*	.03	-.25	-.06	-.39**	-.28*	-.27	
Guilt/Resentment	-.22	-.06	-.15	.00	-.18	-.11	-.13	
Bored Depression	-.26*	-.12	-.04	-.29*	-.10	-.12	-.13	
Paranoia	-.23	.00	-.14	.04	-.18	-.07	-.11	
Psychopathic Deviation	-.01	.20	.08	-.02	-.05	.17	.08	
Schizophrenia	-.29*	.03	-.30	-.14	-.49**	-.27	-.33*	
Psychasthenia	-.11	-.05	-.10	-.04	-.30*	-.05	-.12	
Psychological Inadequacy	-.09	-.11	.06	.09	-.03	.13	.08	
Faking Good	.27*	-.06	.12	.10	.37**	.17	.19*	

* $p < .05$ ** $p < .01$

Note: Sample size varies from 71 to 98. This variability affects tests for significance of correlation coefficients.

Table C-5

Correlations of APOI Scales with School Criteria for
Detachment Commanders

<u>APOI SCALES</u>	<u>PASS/FAIL^a</u>
Ego Development	-.24
Sociability	.07
Resiliency/Energy	-.04
Adventure/Modernity	-.02
Intellectual Curiosity	.23
Traditional Values	.14
Support	.25

Note: Sample size is 40.

^a Correlations with other MSG school
criteria are not shown because of
reduced sample size.

Table C-6

Correlations of SEI Scales with MSG School Criteria for Detachment Commanders

SEI SCALES	PASS FAIL	FINAL SCORE	PEER RATINGS				RATINGS TOTAL
			PROFESS- IONALISM	MILITARY BEARING	DRINKING LIBERTY	OVERALL MOTIVATION	
Career Stress	-.28*	.21	-.41**	-.20	-.29*	-.29*	-.36*
Family Stress	-.33**	.00	-.29*	-.20	-.21	-.15	-.25
Personal Stress	-.39**	-.05	-.22	-.13	-.26	-.19	-.23
Total Stress	-.38**	.08	-.36*	-.19	-.30*	-.26	-.33*

* $p < .05$

** $p < .01$

Note: Sample size varies from 71 to 98. This variability affects tests for significance of correlation coefficients.

APPENDIX D

CORRECTED CORRELATIONS OF PREDICTOR SCORES WITH RSO RATINGS OF DETACHMENT COMMANDER JOB PERFORMANCE

Table D-1

**Corrected Correlations of 16PF Scales with RSO
Ratings of Detachment Commander Job Performance**

<u>16PF SCALES</u>	<u>RSO RATINGS</u>				
	<u>CORE DUTIES</u>	<u>INTERPERSONAL</u>	<u>SELF-DISCIPLINE</u>	<u>RELATIONSHIP with DETACHMENT</u>	<u>TOTAL COMPOSITE</u>
PRIMARY FACTORS					
A Warm	.00	.04	.03	.02	.01
B Intelligent	-.12	-.08	-.20	-.14	-.14
C Emotionally Stable	-.03	-.12	-.22	-.28*	-.14
E Assertive	.01	-.06	.04	.15	.02
F Enthusiastic	.08	.17	-.10	.06	.09
G Conscientious	-.17	-.09	-.02	-.11	-.14
H Bold	.18	.20	-.01	.04	.16
I Tender-minded	.02	-.07	-.08	-.16	-.05
L Suspicious	-.07	.04	.08	.14	.01
M Imaginative	.37**	.48**	.36**	.31**	.44**
N Shrewd	-.01	.10	.02	-.09	.02
O Apprehensive	-.24*	-.22	-.10	-.13	-.24*
Q1 Experimenting	.14	-.05	.07	.24*	.12
Q2 Self-Sufficient	-.21	-.14	.04	-.08	-.16
Q3 Controlled	.06	-.10	-.02	-.29*	-.06
Q4 Tense	-.05	-.17	.02	.18	-.04
SECOND-ORDER FACTORS					
QI Extraversion	.18	.20	-.02	.06	.16
QII Anxiety	-.07	-.08	.06	.18	-.03
QIII Tough Poise	-.34**	-.20	-.16	-.15	-.29*
QIV Independence	.06	.02	.05	.19	.08

* $p < .05$ ** $p < .01$

Note: Sample size is 74. Correlation coefficients have been corrected for range restriction and criterion unreliability.

Table D-2

**Corrected Correlations of 16PF Composites with RSO Ratings
of Detachment Commander Job Performance**

<u>16PF COMPOSITE SCALES</u>	<u>RSO RATINGS</u>				
	<u>CORE DUTIES</u>	<u>INTERPERSONAL</u>	<u>SELF-DISCIPLINE</u>	<u>RELATIONSHIP with DETACHMENT</u>	<u>TOTAL COMPOSITE</u>
OCCUPATIONAL SCALES					
Police 1	-.06	-.16	.01	-.18	-.11
Freedom from Accidents	-.25*	-.29*	-.27*	-.40**	-.32**
Psychological Technician	-.17	-.13	-.21	-.35**	-.22
Counselor	.22	.12	.05	.28*	.20
Football Player	-.01	-.11	-.03	.11	-.03
Police 2	-.07	-.22	.06	.07	-.09
Janitor	.15	-.04	.10	.01	.08
Alcoholic	-.09	-.07	.17	.10	-.03
Criminal	.19	.15	.32**	.27*	.23
NUCLEAR REGULATORY AGENCY SCALES					
Decision	.00	.00	.00	.00	.00
Decision Rank	.05	-.16	-.08	-.18	-.06
Decision Model Index	.01	-.14	-.15	-.25	-.11
MSG STUDY SCALES					
MSG Field Performance	.03	.01	-.01	-.16	-.01
MSG School Performance	-.32**	-.23	-.11	-.22	-.29*
SELECTED COMPOSITE SCALES					
Control	-.09	-.18	.01	-.13	-.13
Depression	-.09	.17	.18	.27*	.09
Psychoticism	.01	-.11	.11	.25*	.04
Neuroticism	-.02	-.04	.02	-.15	-.06
Leadership	.11	.10	-.10	-.04	.07
Accident Proneness	.28*	.38**	.26*	.39**	.36**
Integration	-.15	-.79**	.29*	.40**	-.09
Interest	.05	.14	.30*	.03	.13
Conflict	-.10	-.04	-.10	-.21	-.12

* $p < .05$ ** $p < .01$

Note: Sample size is 63. Correlation coefficients have been corrected for range restriction and criterion unreliability.

Table D-3

**Corrected Correlations of CAQ Schools with RSO
Ratings of Detachment Commander Job Performance**

<u>CAQ SCALES</u>	<u>RSO RATINGS</u>				
	<u>CORE DUTIES</u>	<u>INTERPERSONAL</u>	<u>SELF- DISCIPLINE</u>	<u>RELATIONSHIP with DETACHMENT</u>	<u>TOTAL COMPOSITE</u>
Hypochondriasis	-.13	.05	.07	.15	-.01
Suicidal Depression	-.12	-.03	-.03	.01	-.06
Agitation	.02	.03	-.10	.10	.03
Anxious Depression	.24	.23	.15	.29*	.27*
Low Energy Depression	-.13	.24*	.15	.23	.07
Guilt/Resentment	-.14	-.01	-.04	.11	-.07
Bored Depression	.07	.07	.22	.30*	.15
Paranoia	.06	.00	.18	.32*	.10
Psychopathic Deviation	.24	.00	-.02	.18	.14
Schizophrenia	-.29*	-.17	-.09	-.03	-.22
Psychasthenia	-.13	-.07	-.04	.02	-.10
Psychological Inadequacy	.27*	.30*	.35**	.42**	.36**
Faking Good	.11	-.04	-.10	-.31*	-.03

* $p < .05$ ** $p < .01$

Note: Sample size varies from 63 to 75. This variability affects tests for significance of correlation coefficients. Correlation coefficients have been corrected for range restriction and criterion unreliability.

Table D-4

Corrected Correlations of APOI Scales with RSO
Ratings of Detachment Commander Job Performance

<u>APOI SCALES</u>	<u>RSO RATINGS</u>				
	<u>CORE DUTIES</u>	<u>INTERPERSONAL</u>	<u>SELF- DISCIPLINE</u>	<u>RELATIONSHIP with DETACHMENT</u>	<u>TOTAL COMPOSITE</u>
Ego Development	.10	.32**	.26*	.20	.24
Sociability	.04	.01	-.12	-.04	-.01
Resiliency/Energy	.00	.10	-.04	-.03	.02
Adventure/Modernity	.18	.04	-.04	.04	.10
Intellectual Curiosity	.00	-.07	-.02	-.03	-.01
Traditional Values	-.10	-.04	-.10	-.16	-.12
Support	.01	-.07	-.07	-.21	-.07

* $p < .05$

** $p < .01$

Note: Sample size is 69. Correlation coefficients have been corrected for range restriction and criterion unreliability.

Table D-5

Corrected Correlations of SEI Scales with RSO
Ratings of Detachment Commander Job Performance

<u>SEI SCALES</u>	<u>RSO RATINGS</u>				
	<u>CORE DUTIES</u>	<u>INTERPERSONAL</u>	<u>SELF-DISCIPLINE</u>	<u>RELATIONSHIP with DETACHMENT</u>	<u>TOTAL COMPOSITE</u>
Career Stress	-.15	-.04	.07	.12	-.05
Family Stress	-.10	.06	.02	.05	-.02
Personal Stress	-.31*	-.32*	-.27*	-.16	-.32*
Total Stress	-.22	-.07	-.08	.02	-.14

* $p < .05$

Note: Sample size is 63. Correlation coefficients have been corrected for range restriction and criterion unreliability.

APPENDIX E

CORRELATIONS OF PREDICTOR SCORES WITH RSO RATINGS OF DETACHMENT COMMANDER JOB PERFORMANCE

Table E-1

**Correlations of SAB Scales with RSO
Ratings of Detachment Commander Job Performance**

<u>SAB SCALES</u>	<u>RSO RATINGS</u>				
	<u>CORE DUTIES</u>	<u>INTERPERSONAL</u>	<u>SELF- DISCIPLINE</u>	<u>RELATIONSHIP with DETACHMENT</u>	<u>TOTAL COMPOSITE</u>
C1 Dominance	.14	-.05	.15	.17	.11
C2 Well Being	.03	.02	-.10	-.11	-.01
C3 Good Natured	-.10	-.07	-.12	-.07	-.10
C4 Exhibitionism	.10	.00	.04	.19	.09
C5 Organization	.15	.04	.11	-.11	.08
C6 Age	-.02	-.11	-.01	.06	-.04
C7 Extroversion	.10	.04	-.02	.06	.06
C8 Methodical	-.01	-.09	-.06	.03	-.04
C9 Religious/Abstention	-.12	-.13	-.12	-.10	-.14
C10 Even Tempered	.15	.08	.14	.00	.12
C11 Hard Working	.21	.18	.07	.18	.19
C12 Cautious	.00	-.04	-.13	-.18	-.07
C13 Marriage	.02	.02	-.02	.11	.02
C14 Stable	.12	.06	-.13	.01	.05
C15 Spontaneity	.11	.11	.14	.22	.14
C16 Delinquency	-.23*	-.20	-.23*	-.19	-.24*

* $p < .05$

Note: Correlation coefficients have been corrected for range restriction and criterion unreliability. Sample size is 75.

Table E-2

Correlations of ABLE Scales with RSO
Ratings of Detachment Commander Job Performance

ABLE SCALES	RSO RATINGS				
	CORE DUTIES	INTERPERSONAL	SELF-DISCIPLINE	RELATIONSHIP with DETACHMENT	TOTAL COMPOSITE
SUBSTANTIVE SCALES					
Emotional Stability	.39**	.10	.05	.12	.26*
Self Esteem	.28*	.11	.18	.01	.21
Cooperativeness	-.02	.16	-.08	-.09	.00
Conscientiousness	-.12	-.16	-.02	-.28*	-.15
Nondelinquency	-.05	-.11	-.03	-.23	-.10
Traditional Values	.07	.04	.13	-.09	.07
Work Orientation	.24*	.08	.08	.07	.17
Internal Control	.32**	.16	.13	.12	.25*
Energy Level	.20	.02	.04	-.03	.11
Dominance	.38**	.18	.10	.22	.30*
Physical Condition	.11	.10	.01	.01	.08
VALIDITY SCALES					
Social Desirability	.01	.03	-.03	-.15	-.02
Self-Knowledge	.06	-.02	.00	.04	.04
Random Response	-.05	-.12	-.11	-.05	-.08
Poor Impression	.02	.03	.11	.12	.06

* $p < .05$

** $p < .01$

Note: Correlation coefficients have been corrected for range restriction and criterion unreliability. Sample size is 69.

Table E-3

Correlations of 16PF Scales with RSO
Ratings of Detachment Commander Job Performance

16PF SCALES	RSO RATINGS				
	CORE DUTIES	INTERPERSONAL	SELF-DISCIPLINE	RELATIONSHIP with DETACHMENT	TOTAL COMPOSITE
PRIMARY FACTORS					
A Warm	.00	.03	.02	.01	.01
B Intelligent	-.08	-.05	-.13	-.09	-.09
C Emotionally Stable	.02	-.04	-.10	-.16	-.05
E Assertive	.01	-.05	.03	.11	.02
F Enthusiastic	.06	.13	-.07	.05	.07
G Conscientious	-.11	-.06	-.02	-.07	-.10
H Bold	.12	.13	-.01	.03	.10
I Tender-minded	.01	-.05	-.04	-.10	-.03
L Suspicious	-.05	.02	.05	.10	.00
M Imaginative	.22	.29*	.21	.18	.26*
N Shrewd	.00	.08	.02	-.06	.02
O Apprehensive	-.14	-.13	-.05	-.06	-.13
Q1 Experimenting	.12	-.02	.06	.18	.10
Q2 Self-Sufficient	-.16	-.10	.01	-.07	-.12
Q3 Controlled	.04	-.05	-.01	-.17	-.03
Q4 Tense	-.03	-.11	.03	.13	-.02
SECOND-ORDER FACTORS					
QI Extraversion	.13	.14	-.02	.04	.11
QII Anxiety	-.05	-.07	.03	.11	-.03
QIII Tough Poise	-.20	-.12	-.11	-.10	-.17
QIV Independence	.05	.01	.04	.15	.07

* $p < .05$

Note: Sample size is 74. Correlation coefficients have been corrected for range restriction and criterion unreliability.

Table E-4

**Correlations of 16PF Composites with RSO Ratings
of Detachment Commander Job Performance**

<u>16PF COMPOSITE SCALES</u>	<u>RSO RATINGS</u>				
	<u>CORE DUTIES</u>	<u>INTERPERSONAL</u>	<u>SELF-DISCIPLINE</u>	<u>RELATIONSHIP with DETACHMENT</u>	<u>TOTAL COMPOSITE</u>
OCCUPATIONAL SCALES					
Police 1	-.04	-.12	.00	-.13	-.08
Freedom from Accidents	-.11	-.12	-.13	-.22	-.15
Psychological Technician	-.07	-.04	-.10	-.20	-.10
Counselor	.15	.07	.03	.20	.13
Football Player	-.01	-.08	-.03	.08	-.02
Police 2	-.04	-.15	.04	.05	-.05
Janitor	.11	-.03	.07	.01	.06
Alcoholic	-.06	-.06	.09	.07	-.03
Criminal	.05	.03	.14	.14	.08
NUCLEAR REGULATORY AGENCY SCALES					
Decision	.00	.00	.00	.00	.00
Decision Rank	.02	-.13	-.06	-.14	-.06
Decision Model Index	.00	-.10	-.10	-.16	-.08
MSG STUDY SCALES					
MSG Field Performance	.03	.02	.00	-.09	.01
MSG School Performance	-.20	-.13	-.06	-.14	-.18
SELECTED COMPOSITE SCALES					
Control	-.07	-.13	.00	-.09	-.10
Depression	-.05	.14	.15	.21	.08
Psychoticism	.01	-.08	.08	.19	.03
Neuroticism	-.02	-.03	.01	-.11	-.04
Leadership	.06	.05	-.07	-.03	.03
Accident Proneness	.16	.22	.15	.23	.21
Integration	-.02	-.08	.04	.06	-.01
Interest	.03	.08	.18	.01	.08
Conflict	-.05	-.01	-.07	-.12	-.06

** $p < .01$

Note: Sample size is 74. Correlation coefficients have been corrected for range restriction and criterion unreliability.

Table E-5

**Correlations of CAQ Scales with RSO
Ratings of Detachment Commander Job Performance**

<u>CAQ SCALES</u>	<u>RSO RATINGS</u>				
	<u>CORE DUTIES</u>	<u>INTERPERSONAL</u>	<u>SELF- DISCIPLINE</u>	<u>RELATIONSHIP with DETACHMENT</u>	<u>TOTAL COMPOSITE</u>
Hypochondriasis	-.10	.03	.05	.11	-.01
Suicidal Depression	-.09	-.03	-.02	.00	-.05
Agitation	.01	.02	-.08	.08	.02
Anxious Depression	.17	.16	.10	.19	.19
Low Energy Depression	-.09	.19	.12	.17	.06
Guilt/Resentment	-.08	-.02	-.02	.08	-.04
Bored Depression	.05	.05	.17	.24	.12
Paranoia	.02	-.02	.10	.20	.05
Psychopathic Deviation	.18	.00	-.01	.13	.10
Schizophrenia	-.20	-.12	-.06	-.02	-.15
Psychasthenia	-.09	-.05	-.03	.01	-.07
Psychological Inadequacy	.21	.23	.26*	.32*	.27*
Faking Good	.09	-.02	-.06	-.21	-.01

* $p < .05$

Note: Sample size is 63. Correlation coefficients have been corrected for range restriction and criterion unreliability.

Table E-6

Correlations of APOI Scales with RSO
Ratings of Detachment Commander Job Performance

<u>APOI SCALES</u>	<u>RSO RATINGS</u>				
	<u>CORE DUTIES</u>	<u>INTERPERSONAL</u>	<u>SELF-DISCIPLINE</u>	<u>RELATIONSHIP with DETACHMENT</u>	<u>TOTAL COMPOSITE</u>
Ego Development	.07	.22	.18	.14	.16
Sociability	.03	.01	-.09	-.03	-.01
Resiliency/Energy	.00	.08	-.03	-.02	.01
Adventure/Modernity	.14	.03	-.03	.03	.08
Intellectual Curiosity	.00	-.06	-.01	-.02	-.01
Traditional Values	-.08	-.03	-.08	-.12	-.09
Support	.01	-.05	-.06	-.16	-.06

Note: Sample size is 69. Correlation coefficients have been corrected for range restriction and criterion unreliability.

Table E-7

Correlations of SEI Scales with RSO
Ratings of Detachment Commander Job Performance

<u>SEI SCALES</u>	<u>RSO RATINGS</u>				
	<u>CORE DUTIES</u>	<u>INTERPERSONAL</u>	<u>SELF- DISCIPLINE</u>	<u>RELATIONSHIP with DETACHMENT</u>	<u>TOTAL COMPOSITE</u>
Career Stress	-.11	-.02	.06	.09	-.04
Family Stress	-.06	.06	.03	.04	.01
Personal Stress	-.22	-.22	-.19	-.11	-.22
Total Stress	-.16	-.05	-.05	.02	-.10

Note: Sample size is 63. Correlation coefficients have been corrected for range restriction and criterion unreliability.